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Water Resources Data for Washington

Volume 2. Eastern Washington

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT WA-78-2

WATER YEAR 1978

Prepared in cooperation and with the State of Washington and with other agencies

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CALENDAR FOR WATER YEAR 1978

1977

OCTOBER

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Water resources data fon the 1978 water year for Washington consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This report in two volumes contains records for water discharge at 248 gaging stations; stage only at 4 gaging stations; stage and contents at 44 lakes and reservoirs; water quality at 117 gaging stations (including 6 lakes and reservoirs) and 215 wells; and water levels at 166 observation wells. Also included are data for 96 crest-stage, and 89 water-quality partial-record stations. Additional water data were collected at various sites not involved in the systematic data-collection program and are published as miscellaneous measurements and analyses. These data together with the data in Volume 1 represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State, local, and Federal agencies in Washington.

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CECIL D. ANDRUS, Secretary

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1979

PREFACE

This report was prepared by personnel of the Washington district of the Water Resources Division of the U.S. Geological Survey under the supervision of C. R. Collier, District Chief, and W. H. Robinson, Regional Hydrologist, Western Region. It was done in cooperation with the State of Washington and with other agencies.

This report is one of a series issued annually for each State. General direction for the series is by J. S. Cragwall, Jr., Chief Hydrologist, and G. W. Whetstone, Assistant Chief Hydrologist for Scientific Publications and Data Management, U.S. Geological Survey.

Data for the State of Washington are in two volumes as follows:

Volume 1. Western Washington

Volume 2. Eastern Washington

CONTENTS

	Page
Preface	III
List of gaging stations, in downstream order, for which records are published	VII
Introduction	1
Cooperation	2
Definition of terms	3
Downstream order and station numbers	13
Numbering system for wells and miscellaneous sites	13
Local identifier well-numbering system	14
Special networks and programs	14
Explanation of stage and water-discharge records	15
Collection and computation of data	15
Accuracy of field data and computed results	19
Other data available	19
Explanation of water-quality records	20
Collection and examination of data	20
Water analysis	20
Water temperatures	21
Sediment	21
Explanation of ground-water level records	22
Collection of the data	22
Hydrologic conditions	23
Publication on techniques of water-resources investigations	24
Gaging station records	29
Unnamed tributary seepage investigation	253
Discharge at partial-record stations and miscellaneous sites	254
Crest-stage partial-record stations	254
Discharge measurements at miscellaneous sites	257
Analyses of samples collected at miscellaneous sites	262
Ground-water records	273
Ground-water level records	273
Quality of ground-water records	304
Index	359

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ILLUSTRATIONS

		Page
Figure 1.	System for numbering wells and miscellaneous sites	13
2.	Local identifier well-numbering system	14
3.	Comparison of discharges at two long-term representative gaging stations during 1978 water year with median discharge for water years 1941-70	25
4.	Map of Eastern Washington showing locations of gaging stations	26
5.	Map of Eastern Washington showing locations of surface water-quality sites	27
6-18.	Schematic diagrams showing gaging stations in:	
6.	Pend Oreille River basin and Columbia River above international boundary	28
7.	Columbia River basin from international boundary to Colville River	45
8.	Spokane River basin above Little Spokane River	63
9.	Spokane River basin from Little Spokane River downstream and at Grand Coulee Dam	75
10.	Columbia River basin from Chief Joseph to Wells Dam	99
11.	Okanogan River basin	100
12.	Columbia River basin from Chelan to Wenatchee Rivers	128
13.	Columbia River basin from Rock Island Dam to Priest Rapids gage	143
14.	Yakima River basin between Keechelus Lake and Naneum Creek	169
15.	Yakima River basin between Bumping Lake and Ahtanum Creek	175
16	Yakima River basin downstream from Sunnyside Canal and in Esquatzel Coulee	190
17.	Snake River basin	205
18.	Columbia River basin between Wallula Lake and Klickitat River	234
19.	Map of Eastern Washington showing locations of ground-water level and ground-water quality sampling sites	272

(Letter after station name designates type of data: (d) discharge ((e) elevation, gage height or contents, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment, (p) pesticide)

Page

UPPER COLUMBIA RIVER BASIN
Columbia River at Birchbank, B.C. (d) 29
PEND OREILLE RIVER BASIN
Pend Oreille River at Newport (d) 30
Pend Oreille River at U.S. Highway 2, at Newport (c) 31
Pend Oreille River below Box Canyon near Ione (d) 33
Sullivan Creek:
Harvey Creek (head of Outlet Creek):
Sullivan Lake near Metaline Falls (e) 34
Outlet Creek near Metaline Falls (d) 35
Pend Oreille River at international boundary (dcbmts) 36
Salmo River near Salmo, B.C. (d) 44
Columbia River at international boundary (d) 46
BIG SHEEP CREEK BASIN
Big Sheep Creek near Rossland, B.C. (d) 47
Columbia River at Northport (cbmts) 48
KETTLE RIVER BASIN
Kettle River near Ferry (d) 55
Kettle River near Laurier (d) 56
Kettle River near Barstow (c) 57
COLVILLE RIVER BASIN
Colville River:
Loon Lake (head of Sheep Creek):
Deer Lake near Loon Lake (e) 58
Loon Lake near Loon Lake (e) 59
Mill Creek near Colville (d) 60
Colville River at Kettle Falls (dc) 61
SPOKANE RIVER BASIN
Spokane River near Post Falls, Idaho (dcm) 64
Spokane River above Liberty Bridge near Otis Orchards (d) 67
Newman Lake near Newman Lake (e) 68
Liberty Lake at Liberty Lake (e) 69
Spokane River at Spokane (d) 70
Hangman Creek at Spokane (d) 71
Hangman Creek at mouth at Spokane (cm) 72
Spokane River at Riverside State Park, at Spokane (cm) 73
Little Spokane River:
Diamond Lake (head of West Branch Little Spokane River) near Newport (e) 76
Little Spokane River at Dartford (d) 77
Little Spokane River near mouth, near Spokane (cm) 78
Long Lake at Long Lake (e) 80
Spokane River at Long Lake (dcbmtsp) 81
Chamokane Creek near Springdale (d) 90
Chamokane Creek below Falls near Long Lake (d) 91

VIII GAGING STATION IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

Page

UPPER COLUMBIA RIVER BASIN--Continued
SANPOIL RIVER BASIN
Sanpoil River above Jack Creek at Keller (c) 92
FRANKLIN D. ROOSEVELT LAKE:
DIVERSION AT GRAND COULEE DAM
Feeder Canal at Grand Coulee (d) 93
Franklin D. Roosevelt Lake at Grand Coulee Dam (e) 94
Columbia River at Grand Coulee Dam (dt) 95
Columbia River at Bridgeport (d) 101
OKANOGAN RIVER BASIN
Okanagan River near Oliver, B.C. (d) 102
Osoyoos Lake near Oroville (e) 103
Okanogan River at Bridge Street at Oroville (ecm) 104
Tonasket Creek at Oroville (d) 106
Okanogan River at Zosel millpond, at Oroville (e) 107
Okanogan River at Oroville (d) 108
Similkameen River near Nighthawk (d) 109
Similkameen River at Oroville (cm) 110
Aeneas Lake near Tonasket (e) 111
Okanogan River near Tonasket (d) 112
Okanogan River at Okanogan (c) 113
Okanogan River at Malott (dcm) 114
METHOW RIVER BASIN
Methow River below Gate Creek near Mazama (c) 117
Chewack River:
Andrews Creek near Mazama (dcmsp) 118
Twisp River:
Twisp River near Twisp (d) 121
Methow River:
Methow River near Twisp (cm) 122
Beaver Creek below South Fork near Twisp (d) 123
Methow River near Pateros (d) 124
Methow River at 2nd Bridge near Pateros (cm) 125
Columbia River below Wells Dam (d) 127
CHELAN RIVER BASIN
Stehekin River (head of Chelan River) at Stehekin (d) 129
Lake Chelan at Chelan (e) 130
Chelan River at Chelan (d) 131
ENTIAT RIVER BASIN
Entiat River near Ardenvoir (d) 133
Entiat River near Entiat (cm) 134
Columbia River at Rocky Reach Dam (d) 135
WENATCHEE RIVER BASIN
White River (head of Wenatchee River) near Plain (d) 136
Wenatchee River at Plain (d) 137
Wenatchee River near Leavenworth (c) 138
Wenatchee River at Peshastin (d) 139
Wenatch River at Monitor (d) 140
Wenatchee River at Wenatchee (cm) 141

Page

UPPER COLUMBIA RIVER BASIN--Continued
Columbia River below Rock Island Dam (d) 144
CRAB CREEK BASIN
Crab Creek:
Rock Creek:
Clear Lake near Medical Lake (e) 146
Crab Creek at Irby (d) 147
Crab Creek near Moses Lake (d) 148
Lenore Lake near Soap Lake (d) 149
Soap Lake near Soap Lake (e) 150
Rocky Ford Creek near Ephrata (d) 151
Moses Lake at Moses Lake (e) 152
Crab Creek:
DW 272A Drain:
DW 272A1 Drain near Royal Camp (d) 153
DW 272A Drain near Royal Camp (d) 155
Crab Creek near Beverly (dc) 157
Columbia River below Priest Rapids Dam (d) 160
Columbia River at Vernita Bridge near Priest Rapids Dam (cbmt) 161
Columbia River at Richland (t) 166
SCOOTENAY RESERVOIR BASIN
Scootenay Reservoir:
E1 68-D Wasteway near Othello (d) 168
YAKIMA RIVER BASIN
Yakima River near Martin (d) 170
Kachess River near Easton (d) 171
Cle Elum River near Roslyn (d) 172
Yakima River at Cle Elum (d) 173
Naneum Creek near Ellensburg (d) 174
Yakima River at Umtanum (d) 176
Naches River:
Bumping River near Nile (d) 177
American River near Nile (d) 178
Reservoirs in Yakima River basin (e) 179
Tieton River at Tieton Dam, near Naches (d) 181
Tieton River at Headworks of Tieton Canal near Naches (d) 182
Naches River below Tieton River near Naches (d) 183
Yakima River above Ahtanum River at Union Gap (d) 185
North Fork Ahtanum Creek near Tampico (d) 186
South Fork Ahtanum Creek at Conrad Ranch, near Tampico (d) 187
Ahtanum Creek at Union Gap (d) 188
Yakima River at Parker (cm) 189
Yakima River near Parker (d) 191
Yakima River at Mabton (d) 193
Yakima River at Kiona (dcbmtsp) 194
ESQUATZEL COULEE BASIN
Providence Coulee (head of Esquatzel Coulee) near Cunningham (d) 202
Esquatzel Coulee at Connell (d) 203
Esquatzel Coulee at Eltopia (d) 204

UPPER COLUMBIA RIVER BASIN--Continued Page
Columbia River:
Snake River:
GRANDE RONDE RIVER BASIN
Grande Ronde River at Troy, OR (d) 206
Snake River near Anatone (dcmts) 207
ASOTIN RIVER BASIN
Asotin Creek below Kearney Gulch near Asotin (d) 212
Snake River below Lower Granite Dam (cm) 213
TUCANNON RIVER BASIN
Tucannon River near Starbuck (d) 215
Tucannon River at Power (c) 216
PALOUSE RIVER BASIN
Palouse River at Palouse (d) 217
Palouse River at Colfax (d) 218
Palouse River:
South Fork Palouse River at Pullman (d) 219
Missouri Flat Creek at Pullman (d) 221
Palouse River below South Fork at Colfax (d) 222
Palouse River at Hooper (dcm) 223
Sprague Lake near Sprague (e) 225
Snake River below Ice Harbor Dam (d) 226
Snake River at Burbank (cbmts) 227
LOWER COLUMBIA RIVER BASIN
WALLA WALLA RIVER BASIN
Walla Walla River:
Mill Creek at Walla Walla (d) 235
Touchet River:
Touchet River at Bolles (d) 236
Touchet River at Touchet (cm) 237
Walla Walla River near Touchet (d) 238
Walla Walla River below Warm Springs Creek near Touchet (cm) 239
Columbia River below McNary Dam near Umatilla, OR (d) 240
Columbia River at Umatilla, OR (cbmt) 241
Columbia River at The Dalles, OR 244
KLICKITAT RIVER BASIN
Little Klickitat River near Wahkiacus (dc) 247
Klickitat River near Pitt (dcbms) 248

WATER RESOURCES DATA FOR WASHINGTON, 1978

INTRODUCTION

Water resources data for the 1978 water year for Washington consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This volume contains records for water discharge at 248 gaging stations; stage only at 4 gaging stations; stage and contents at 44 lakes and reservoirs; water quality at 117 gaging stations (including 6 lakes and reservoirs) and 215 wells; and water levels at 166 observation wells. Also included are data for 96 crest-stage and 89 water-quality partial-record stations. Locations of these sites are shown on figures 4, 5, and 19. Additional water data were collected at various sites not involved in the systematic data-collection program and are published as miscellaneous measurements and and analyses. These data together with the data in Volume 1 represent that part of the national Water Data system operated by the U.S. Geological Survey and cooperating State, local, and Federal agencies in Washington.

Records of discharge and stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled, "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United. States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from the Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report WA-78-2". For archiving and general distribution, the reports for water years, 1971-74 are also identified as water-data reports. These water-data reports are on sale, in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the district chief at the address given on the back of the title page or by telephone (206) 593-6510.

COOPERATION

The U.S. Geological Survey and organizations of the State of Washington have had cooperative agreements for the systematic collection of surface-water and water-quality records since 1909. Organizations that supplied data are acknowledge in the station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

Washington State Department of Ecology, Wilbur G. Hallauer
Washington State Department of Fisheries, Gordon Sandison
Washington State Department of Transportaion, William A. Bulley, secretary
Washington State Department of Game, Ralph W. Larson, director
City of Seattle, Department of Lighting, Gordon Vickery, superintendent
Municipality of Metropolitan Seattle, Neil Peterson, executive director
City of Tacoma, Department of Public Utilities, A. J. Benedetti, director
City of Tacoma, Department of Public Works, Ronald M. Button, director
City of Everett, Department of Utilities, Marvin C. Haglund, director
City of Bellevue, Department of Public Works, Clark Douglas, director
Chelan County, P.U.D. No. 1, Howard Elmore, manager
King County, Department of Public Works, James W. Guenther, director
Lewis County, Department of Public Works, Roy J. Myklebust, director
Spokane County Board of Commissioners, Jerry C. Kopet, chairman
Quileute Tribal Council, Christian Penn, Sr., chairman
Quinault Tribal Council, Joseph B. DeLaCruz, president
Makah Tribal Council, John Ides, chairman
Spokane Tribe, Glenn F. Galbraith, executive director
Yakima Tribal Council, Watson Totus, chairman
Washington State University, Department of Agricultural Engineering, J. Roberts, chairman
South Columbia Basin Irrigation District, Russell D. Smith, secretary-manager
Shoalwater Tribal Council, Douglas M. Davis, chairman
Hoh Tribal Council, Esther Penn, chairperson
Pierce County Board of Commissioners, Clay Huntington, chairman
Clallam County Board of Commissioners, Howard V. Doherty Jr, chairman

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 40 gaging stations; the U.S. Environmental Protection Agency, in collecting records for 2 water-quality stations; the U.S. Energy Research and Development Administration, in collecting records for 6 water-quality stations; the Bureau of Reclamation, U.S. Department of Interior, in collecting records for 18 gaging stations; the U.S. Department of State, in collecting records for 13 gaging stations; the Bonneville Power Administration, in collecting records for 4 gaging stations.

The following organizations aided in collecting records:

Crown Zellerbach Corporation; Intercounty River Improvement; ITT Rayonier; Pacific Power and Light Co., No. 1 of Cowlitz County, No. 1 of Douglas County, No. 2 of Grant County, No. 1 of Pend Oreille County, Puget Sound Power and Light Co., Skagit County Engineer; University of Washington, through its Fisheries Research Institute; Washington Public Power Supply System; Washington Water Power Co., Whatcom County Engineer.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report are defined below. See also table for converting English units to International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, ac-ft) is a quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic metres.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Bacteria are microscopic unicellular organisms, typically spherical, rod-like, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse of plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C $\pm$ 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C $\pm$ 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of samples.

Fecal streptocaccal bacteria are bacteria found also in intestines of warm-blood animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are exprcssed as number of colonies per 100 mL of sample.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Cells/volume referes to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonacous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloro-platinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulated the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet or water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/s, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to the amount of substance present in true chemical solution. In practice, however, the term includes all forms of substance that will pass through a 0.45-micrometer membrane filter, and thus may include some very small (coloidal) suspended particles. Analyses are performed on filtered samples.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution area, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part of all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (*ug/g*) is a unit expressing the concentrations of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, *ug/L*) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L *mg/L*) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Partial-size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation
Silt.....	.004 - .062	Sedimentation
Sand.....	.062 - 2.	Sedimentation or sieve
Gravel.....	2.0 -64.0	Sieve

The particle-size distribution given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillienth (1×10^{12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those higher green plants. Some forms produce algal mats or floating "moss in lakes." Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondardy consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water, it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the work "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of aftificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multi-place samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the area are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdam and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, *Hexagenia limbata* is the following:

Kingdom.....Animal
Phylum.....Arthropoda
Class.....Insecta
Order..... Ephemeroptera
Family.....Ephemeridae
Genus.....Hexageria
Species.....Hexagenia limbata

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete 8-digit number for each station such as 12041000, which appears just to the left of the station name, includes the 2-digit part number "12" plus the 6-digit downstream order number "041000."

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 1 below.

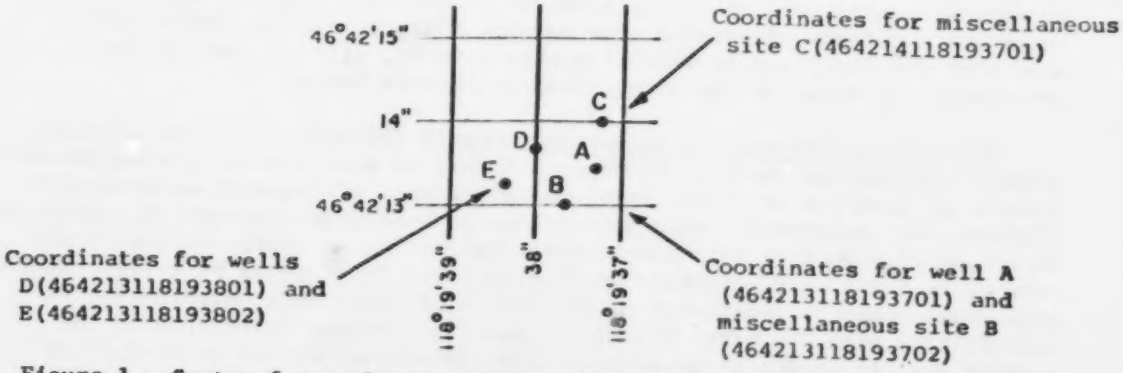

Figure 1. System for numbering wells and miscellaneous sites (latitude and longtitude).

Local identifier well-numbering system

Local identifier well numbers used by the Geological Survey in the State of Washington are based on and show locations of wells according to the rectangular system for subdivision of public land, indicating township, range, section, and 40-acre tract within the section. For example, in the well number 25/43E-15M1, the part preceeding the hyphen indicates successively the township and range (T.25 N., R.43 E.) north and east of the Willamette base line and meridian. (Because all townships in Washington are north of the Willamette base line the letter "N", indicating north is omitted; and because most of the State is east of the Willamette meridian the letter "E" is sometimes omitted for those ranges east of the Willamette meridian, but "W" is always included when the range lies west of the Willamette meridian.) The first number following the hyphen indicates the section (sec.15) and the letter (M) given the 40-acre subdivision of the section as shown in figure 2. The last number (1) is the serial number of the well in that particular 40-acre tract. Thus, the first well recorded in the NW¼SW¼ sec.15, T.25 N., R.43 E., would have the number 25/43-15M1, and the second well would have the number 25/43-15M2 or 25/43E-15M2. See figure 2 below:

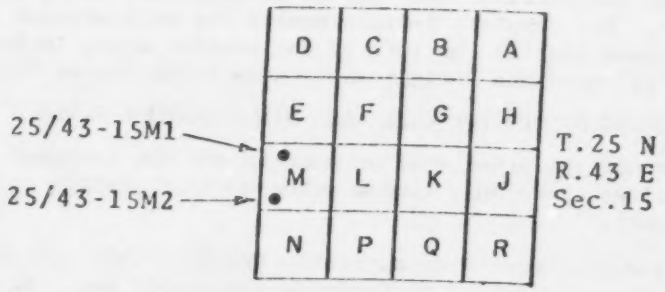

Figure 2. Local identifier well numbering system.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict area variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and asses long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are samples represent major drainage basins in the conterminous United States.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text-books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), stepbackwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some northern stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lake and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations or revisions of previously published records,

type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from most accurate maps available. River mileage given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use, the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS" on page 7.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE", it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last those for the current year. Unless otherwise qualified, the maximum

discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR: if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skeleton rating tables are published, immediately following EXTREMES, for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and

contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measure-

ments, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight intake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diel temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

All temperature values in the daily tables are rounded to the nearest 0.5°C. Therefore, temperature values published in conjunction with water samples may be 0.1 to 0.2°C outside the range of the values published in the daily tables.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During period of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow is predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observations wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figure 1.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level is given in the well description. The height of the measuring point (MP) above or below land surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

HYDROLOGIC CONDITIONS

The annual mean yearly runoff in eastern Washington during the 1978 water year ranged generally from about 80 to 105 percent of average. Streamflow was near normal in October and November. Precipitation in December was nearly double the normal amount throughout most of eastern Washington and streamflows were generally above normal particularily in basins draining the Cascade range between Chelan and Klickitat River basins. Streamflows continued above normal through March. By April 1 the snowpack was still near normal in the northern half of eastern Washington but was partially depleted or gone in the remainder of the area. Streamflows April to June were generally about normal in the northern portion of the region and below normal in the southern portion of the region. Streamflows were generally at or above normal July through September due to increased precipitation. Monthly and annual mean discharges are compared with medians at two representative gaging stations in figure 3.

The groundwater level in the key observation well in eastern Washington was above average for December to April after the excessive precipitation of December, and for the July to September period, and was below average for October, November, May and June.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office. Prices are effective October 1978 but are subject to change.

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature-influential factors, field measurement, and data presentation*, by H. H. Stevens Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages. $1.60.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W.Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages. $0.85

2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages. $1.90.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages. $1.75.

3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages. $1.00.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages. $0.35.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages. $0.40.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages. $1.00.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages. $0.35.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6, 1968, 13 pages. $1.00.

3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages. $1.40.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages. $1.25.

3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages. $1.20.

3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. $0.35. Not currently available.

3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages. $0.70.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2 1976. 172 pages. $2.50.

3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages. $2.50.

3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2, 1970. 59 pages. $2.50.

3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages. $2.10.

4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4 Chapter A1. 1968. 39 pages. $1.60.

4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages. $1.20

4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972, 18 pages. $0.65.

4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages. $0.75.

4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages. $0.65.

4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages. $1.10.

5-A1. *Methods for collection and analysis of water samples for dissolved minerals and gases*, by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 pages. $2.40.

5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages. $0.80.

5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages. $0.90.

5-A4.* *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P.E. Greeson, T.A. Ehlke, G.A. Irwin, B.W. Lium, and K.V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages. $20.00.

5-A5.* *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages. $16.00.

5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages. $2.10.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages. $2.30.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages. $0.70.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages. $1.10.

*These publications are available ONLY from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. They are in looseleaf format and are subscription items. Additional supplements will be issued to subscribers at no extra cost. Checks should be made payable to Superintendent of Documents. Requester should emphasize to Superintendent of Documents that this is a subscription item.

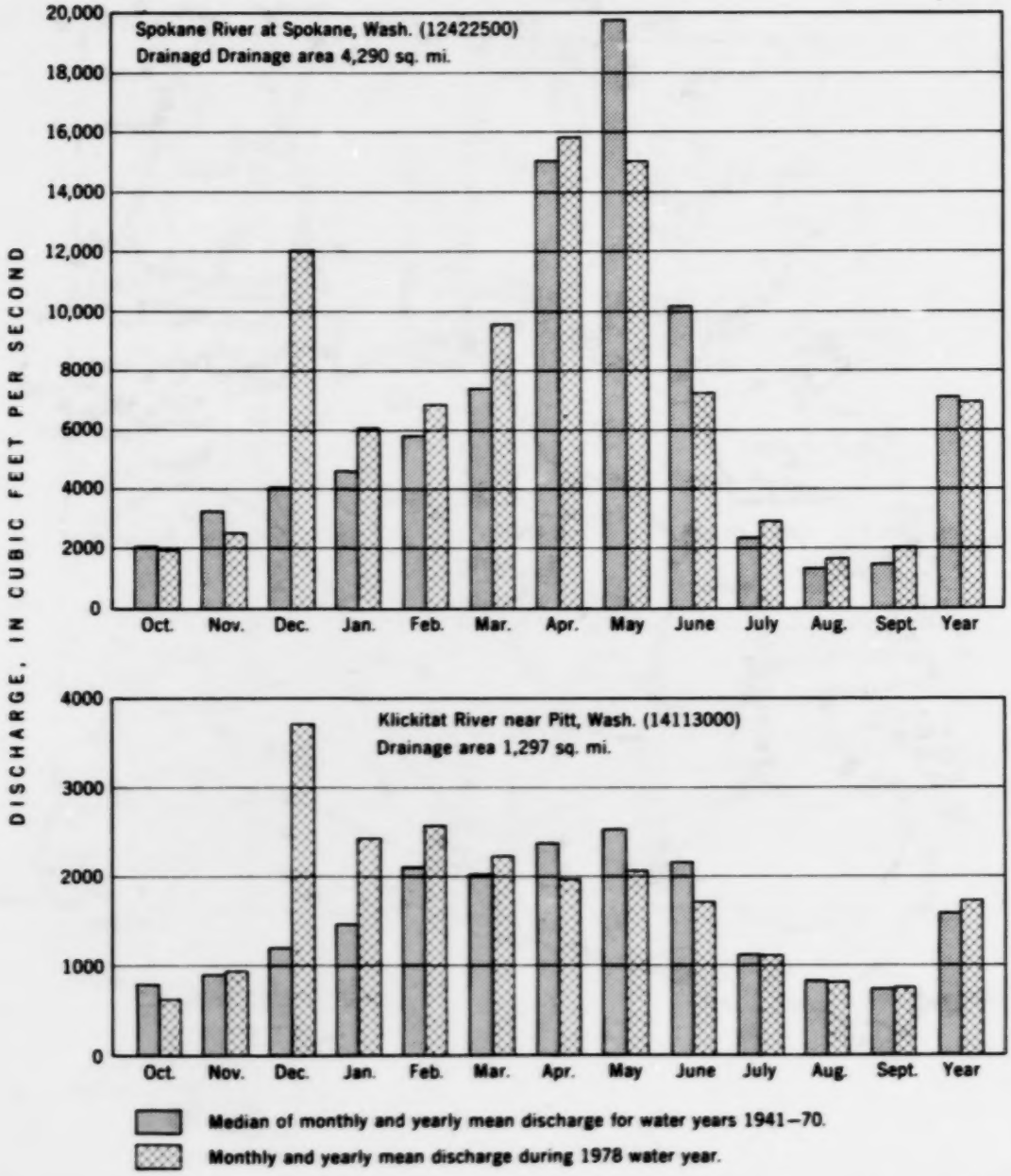

Figure 3. Discharge during 1978 water year compared with median discharge for period 1941–70 for two representative gaging stations.

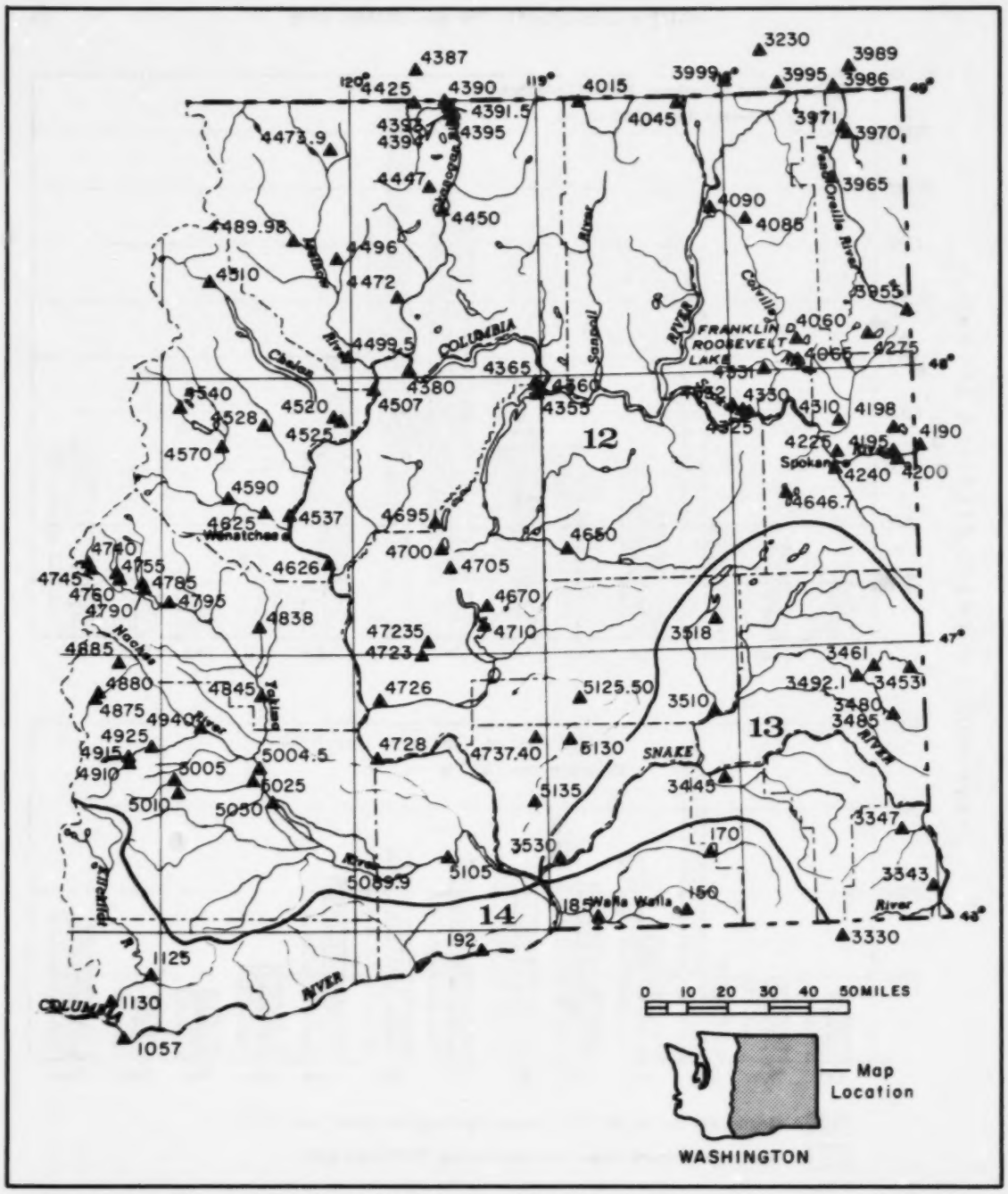

Figure 4. Map of Eastern Washington showing locations of gaging stations operated by the U.S. Geological Survey in cooperation with other agencies. Numbers shown are abbreviated versions of complete station number used in text. Part numbers are the large figures.

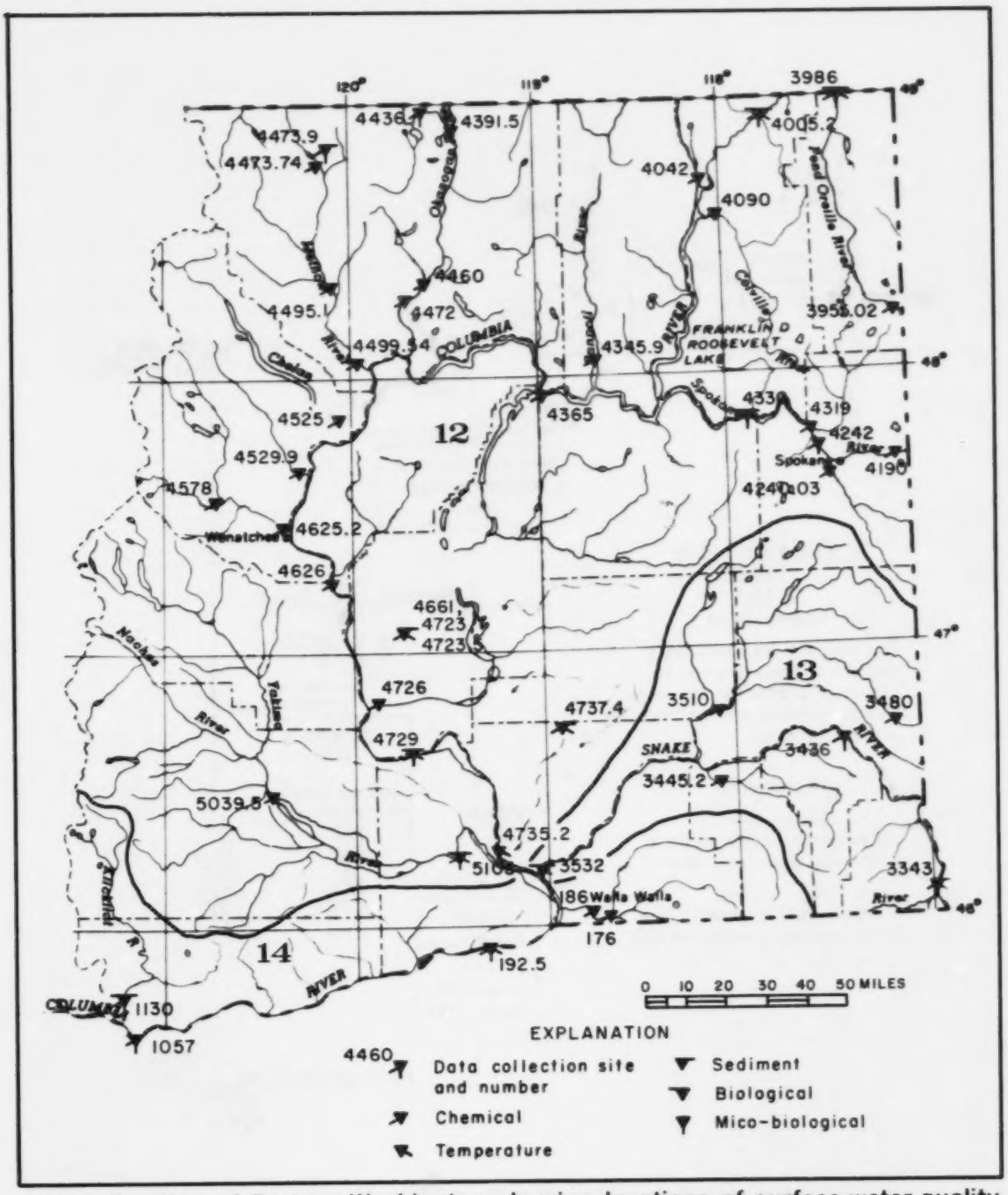

Figure 5. Map of Eastern Washington showing locations of surface-water-quality sampling stations operated by the U.S. Geological Survey in cooperation with other agencies. Numbers shown are abbreviated versions of complete station number used in text. Part numbers are the large figures.

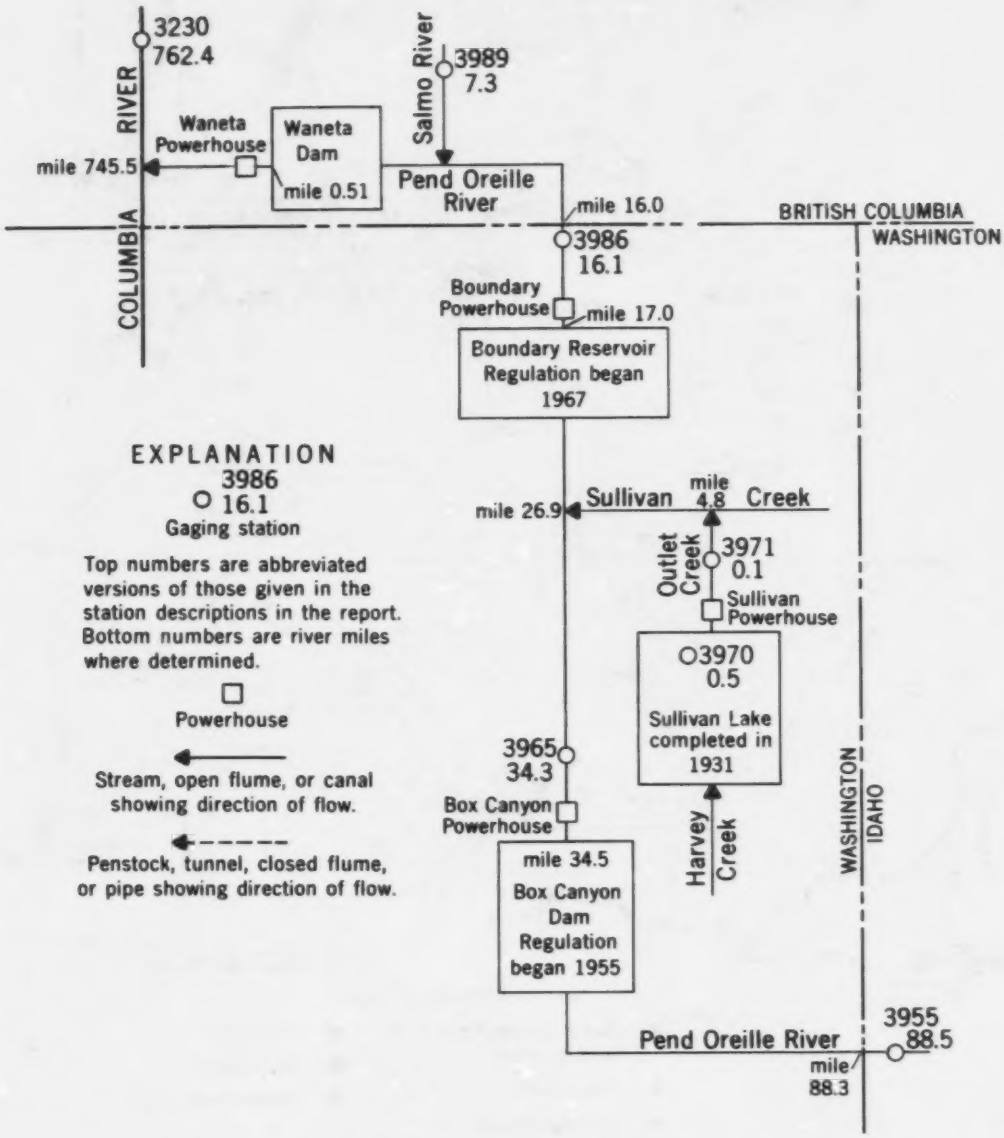

Figure 6. Gaging stations in Pend Oreille River basin and Columbia River above International Boundary.

12323000 COLUMBIA RIVER AT BIRCHBANK, BRITISH COLUMBIA
(International gaging station)

LOCATION.--Lat 49°10'40", long 117°42'59", on right bank at Birchbank, British Columbia, 0.7 mi (1.1 km) downstream from Sullivan Creek, 7 mi (11.3 km) upstream from Trail, 11.7 mi (18.8 km) downstream from Kootenay River, 17.4 mi (28.0 km) upstream from international boundary, and at mile 762.4 (1,226.7 km).

DRAINAGE AREA.--34,000 mi^2 (88,100 km^2), approximately.

PERIOD OF RECORD.-- April 1913 to current year. Published as "at Trail, British Columbia" 1913-37.

REVISED RECORDS.--WSP 982: 1942. WSP 1216: 1949.

GAGE.--Water-stage recorder. Datum of gage is 1,329.90 ft (405.354 m) National Geodetic Vertical Datum of 1929, 1947 international joint adjustment, published as 1,338.00 ft (407.822 m) prior to October 1948. Prior to Oct. 1, 1937, nonrecording gage on highway bridge at site 6.8 mi (10.9 km) downstream at datum 16.27 ft (4.959 m) lower.

REMARKS.--Records excellent. Flow regulated by six major reservoirs, and by numerous small reservoirs and powerplants. Diversions above station for irrigation of about 25,000 acres (101 km^2).

COOPERATION.--This station is maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--65 years, 71,140 ft^3/s (2,015 m^3/s), 51,540,000 acre-ft/yr (63,500 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 377,000 ft^3/s (10,700 m^3/s) June 9, 1961, gage height, 50.05 ft (15.255 m); maximum gage height, 50.62 ft (15.429 m) June 11, 1948; minimum discharge observed, 8,940 ft^3/s (253 m^3/s) Feb. 3, 1967, gage height, 6.27 ft (1.911 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 138,000 ft^3/s (3,910 m^3/s) Sept. 7, gage height, 26.39 ft (8.044 m); minimum daily, 26,100 ft^3/s (739 m^3/s) Apr. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49000	48500	51400	39700	40800	42600	50300	62900	78200	63300	75500	54500
2	46600	47500	56300	43800	43400	61000	48900	60900	78200	63400	75200	62300
3	44300	49500	53200	47700	34100	57000	48900	55100	81300	62800	75100	81200
4	44300	53600	38600	45800	32300	56600	48900	51900	80300	62900	79200	98900
5	43900	54500	30700	42800	36900	56500	48600	51500	73800	64500	79400	110000
6	42600	50400	31000	43400	44900	57200	48400	51400	68400	78200	81600	117000
7	41400	49000	29600	44000	45500	57400	47900	46000	66500	72800	75500	122000
8	39100	54300	24800	47700	45800	56600	47300	39500	63100	73100	72700	131000
9	38100	54600	26900	54800	46100	56500	42000	39800	64100	73700	74100	124000
10	36800	54500	30600	52400	46000	57800	31200	40000	66100	72400	82900	109000
11	38700	54500	40000	53200	45800	60100	27400	42100	63900	75400	93400	99100
12	41100	54700	41900	52400	45800	53800	27900	43200	63700	83500	90400	99100
13	37200	56200	42000	52400	45900	51500	27700	51300	67200	86200	95100	97300
14	37200	50300	37800	53600	45800	51200	27800	63800	67200	87100	98700	90300
15	36900	47400	30100	49000	45800	51400	26600	74200	67600	87500	75400	81800
16	35500	46300	31600	43100	46000	51000	26400	76600	68100	87600	73100	63800
17	31700	43500	32200	41700	45800	51100	26100	79500	66400	90000	81800	57800
18	33100	44900	31200	43500	45500	51000	26600	82800	65200	103000	78300	64900
19	33300	50600	30600	42000	50800	44300	35500	85700	64300	109000	74100	69200
20	33500	51900	30900	43100	56900	37300	43700	87700	61300	104000	78200	69100
21	40200	54300	30300	40400	56600	38000	44600	90400	63100	96500	74600	64900
22	47200	59400	30200	39400	56800	37700	44500	92700	63500	93900	75700	54300
23	43800	59900	30200	32600	56900	38000	45300	90900	62300	90800	60800	54800
24	44300	60100	30000	34500	57400	42000	45600	90100	62300	83100	56100	56000
25	44000	59800	32700	31800	57600	42100	45700	89600	62100	74000	55700	55700
26	42600	60000	33300	32800	56800	42300	46800	89100	61000	79600	60300	57400
27	40700	60200	33600	36300	57000	40000	48000	87800	59200	88000	63800	59700
28	40700	58300	36400	36200	58400	38200	51800	82100	59800	96900	64300	67200
29	40600	53600	37200	42500	---	41500	55100	78600	61900	98100	60900	80800
30	42000	52500	35600	45800	---	48000	59100	78100	63600	91400	56700	83000
31	45700	---	36900	41000	---	48700	---	77700	---	82000	53500	---
TOTAL	1256100	1595200	1087800	1351800	1346600	1538400	1244600	2133000	1993700	2566700	2296100	2436100
MEAN	40520	53170	35090	43610	48090	49630	41490	68810	66460	82800	74070	81200
MAX	49000	60200	56300	54800	58400	62600	59100	92700	81300	109000	98700	131000
MIN	31700	43500	24800	31800	32300	37300	26100	39500	59200	62800	53500	54300
AC-FT	2491000	3164000	2158000	2681000	2671000	3051000	2469000	4231000	3955000	5091000	4554000	4832000

CAL YR 1977 TOTAL 22243200 MEAN 60940 MAX 104000 MIN 15600 AC-FT 44120000
WTR YR 1978 TOTAL 20846100 MEAN 57110 MAX 131000 MIN 24800 AC-FT 41350000

12395500 PEND OREILLE RIVER AT NEWPORT, WA

LOCATION.--Lat 48°10'56", long 117°02'00", in SE¼SW¼SW¼ sec.24, T.56 N., R.6 W. (Boise Meridian), Bonner County, Hydrologic Unit 17010216, on left bank at Newport, 0.2 mi (0.3 km) upstream from bridge on U.S. Highway 2, 0.2 mi (0.3 km) east of Idaho-Washington State line, 1.6 mi (2.6 km) downstream from Albeni Falls Dam, and at mile 88.5 (142.4 km).

DRAINAGE AREA.--24,200 mi² (62,700 km²), approximately.

PERIOD OF RECORD.--June 1903 to September 1941, October 1952 to current year. Prior to October 1921, published as Clark Fork at Newport, Wash., October 1921 to September 1937, as Clark Fork at Priest River, Idaho, and October 1937 to September 1941, as Pend Oreille River at Priest River, Idaho.

REVISED RECORDS.--WSP 532: 1903-11.

GAGE.--Water-stage recorder. Datum of gage is 1,999.7 ft (609.509 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 22, 1928, nonrecording gages at Priest River, Newport, or Metaline Falls at various datums (see description, WSP 532, p. 92). Sept. 22, 1928, to Sept. 30, 1935, at datum 2,040.14 ft (621.835 m) National Geodetic Vertical Datum of 1929, and Oct. 1, 1935, to Sept. 30, 1941, at datum 2,000 ft (609.6 m) National Geodetic Vertical Datum of 1929, water-stage recorder at Priest River. Since December 1952, auxiliary water-stage recorder 2.74 mi (4.41 km) downstream from base gage.

REMARKS.--Records good. Flow regulated at Albeni Falls Dam and affected by storage in Pend Oreille Lake (see sta 12392500), Flathead Lake, Hungry Horse Reservoir, and several smaller reservoirs. Diversions above station for irrigation of about 354,000 acres (143,000 hm²).

AVERAGE DISCHARGE.--64 years (water years 1904-41, 1953-78), 26,020 ft³/s (737 m³/s), 18,850,000 acre-ft/yr (23.2 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136,000 ft³/s (3,850 m³/s) June 15, 1913, June 21, 1933, June 12, 1972; minimum, 1,280 ft³/s (36 m³/s) Sept. 1, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 64.0 ft (19.51 m) in June 1894, present site and datum, from water-surface profiles (discharge, about 200,000 ft³/s or 5,660 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 65,600 ft³/s (1,858 m³/s) May 30; maximum gage height, 42.40 ft (12.923 m) June 1; minimum discharge, 6,880 ft³/s (195 m³/s) Aug. 25; minimum gage height, 31.95 ft (9.738 m) Aug. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17500	26200	14500	13900	17800	19200	27000	33100	64100	54400	17500	14700
2	17400	26100	18400	13700	17900	18900	27800	31800	63800	55200	17000	15800
3	19400	26500	19600	13800	19500	18200	29700	31400	63700	52900	16600	15700
4	21600	26100	20100	14600	20100	17900	31300	34900	62800	48900	17400	14800
5	21700	26200	21100	16800	19100	15500	31200	43000	61800	49800	18000	14700
6	21900	26200	22100	17800	19200	13600	33200	47100	61700	49600	18800	14500
7	19800	26900	22000	17500	19300	14900	34300	46700	61800	51000	16700	15100
8	16400	26500	20900	17700	19500	17400	32200	44900	62000	52300	15600	16100
9	16400	26400	18100	19300	19500	15700	32700	42700	61500	51400	13300	15000
10	19700	26900	16900	19500	19000	14200	32700	42400	62400	49800	10600	15000
11	21600	27300	16700	21100	18900	14000	32300	43600	62700	47200	12100	15300
12	21700	26500	18100	21700	19000	13900	31900	44800	61300	46800	12000	14200
13	21700	26500	21100	19900	19000	15300	31800	45100	57200	44000	12300	12200
14	23200	27200	21600	17400	20200	17900	30400	45400	51300	37100	13800	12900
15	18500	26900	24400	17500	20600	17800	30300	46700	49200	30500	12400	14000
16	13100	26200	25900	17600	19900	17800	31300	49000	48400	30600	11100	14000
17	19200	26200	26100	18200	20100	17400	31400	51900	48400	31100	12100	14000
18	24800	25300	25200	19900	20400	17600	33200	53600	48800	30000	12200	14600
19	25800	25500	23700	19800	19400	17600	35400	54500	46200	27000	11100	19000
20	26000	22600	22800	19700	19200	19500	35300	55500	43500	29700	12300	22500
21	26100	22300	22700	19600	17600	18400	33400	56100	42800	36200	13600	22600
22	25900	21600	20700	19500	17000	18300	29200	56900	42200	36000	12300	22200
23	25900	19200	18600	19000	17100	19900	33600	58400	43900	34900	11200	22100
24	27500	17700	17300	17400	18300	21300	36700	59300	46000	28900	10800	22400
25	28300	15900	17500	17100	18100	22300	38000	59000	46100	24100	9260	22600
26	28300	14700	17600	17300	18000	23500	37900	59600	52200	20800	10800	22500
27	25000	14500	15700	17300	18700	22100	37900	59400	59900	18100	11000	22300
28	25500	14700	13100	17400	19000	24800	34900	59400	62100	18800	13500	22300
29	26100	14700	13000	17900	---	25700	29300	59200	60600	19900	15500	22400
30	26200	14600	13200	19900	---	25900	29500	61600	57300	20000	13600	22500
31	26500	---	13900	19900	---	26600	---	64700	---	19100	13600	---
TOTAL	698700	694100	602600	559700	531400	583100	975000	1541700	1655700	1146100	416460	528000
MEAN	22540	23140	19440	18050	18980	18810	32500	49730	55190	36970	13430	17600
MAX	28300	27300	26100	21700	20600	26600	38000	64700	64100	55200	18000	22600
MIN	13100	14500	13000	13700	17000	13600	27000	31400	42200	18100	9260	12200
AC-FT	1386000	1377000	1195000	1110000	1054000	1157000	1934000	3058000	3284000	2273000	826000	1047000

CAL YR 1977 TOTAL 5346960 MEAN 14650 MAX 28300 MIN 3140 AC-FT 10610000
WTR YR 1978 TOTAL 9932560 MEAN 27210 MAX 64700 MIN 9260 AC-FT 19700000

12395502 (revised) PEND OREILLE RIVER AT U.S. HIGHWAY 2, AT NEWPORT, WA
(Formerly Pend Oreille River at Newport)

LOCATION.--Lat 48°11'07" (revised), long 117°02'00", in SE¼SW¼ sec.24, T.56 N., R.6 W. (Boise Meridian), Bonner County, Hydrologic Unit 17010216, at U.S. Highway 2 at Newport, 0.2 mi (0.3 km) east of Idaho-Washington State line, 0.2 mi (0.3 km) downstream from gage, 1.8 mi (2.9 km) downstream from Albeni Falls Dam, and at mile 88.7 (142.7 km).

DRAINAGE AREA.--24,200 mi² (62,700 km²), approximately.

PERIOD OF RECORD.--Water years 1959-69, 1973-74, 1976 to current year.

REMARKS.--Water years 1959-69, 1973-74, 1976 published as 12395500 "Pend Oreille River at Newport", later changed to 12395502 "Pend Oreille River at U.S. Highway 2, at Newport."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW (CFS)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)
OCT , 1977										
25...	1105		-- 28300	--	6.9	11.6	--	4	--	89
NOV										
15...	0800		-- 26700	185	7.6	6.5	--	3	--	91
DEC										
07...	0930		-- 22100	200	7.3	1.0	--	11	--	89
JAN , 1978										
11...	0920	21100	--	205	7.4	.1	15	8	13.8	87
FEB										
07...	0915	19300	--	170	7.5	2.2	20	7	13.3	91
MAR										
07...	0845		-- 13800	140	7.4	1.2	15	8	13.7	84
APR										
12...	0930		-- 32000	145	8.3	6.6	20	6	11.1	85
MAY										
09...	0915		-- 43800	150	7.3	10.4	10	5	10.9	79
JUN										
06...	0845		-- 61100	130	9.0	14.0	20	11	9.9	74
JUL										
11...	0700		-- 47700	145	8.8	16.4	25	10	9.4	75
AUG										
08...	1100		-- 15900	125	8.9	23.6	10	3	8.3	76
SEP										
12...	1005		-- 15300	130	8.5	16.8	10	3	9.3	78

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
OCT , 1977									
25...	7	24	7.1	2.5	6	.1	.8	100	0
NOV									
15...	11	25	6.9	2.7	6	.1	1.0	98	0
DEC									
07...	13	25	6.5	2.7	6	.1	1.0	93	0
JAN , 1978									
11...	9	24	6.5	2.5	6	.1	.8	95	0
FEB									
07...	11	25	6.9	2.5	6	.1	.8	97	0
MAR									
07...	3	23	6.5	2.4	6	.1	.9	99	0
APR									
12...	10	24	6.1	2.7	6	.1	1.0	91	0
MAY									
09...	10	22	5.9	2.8	7	.1	.8	85	0
JUN									
06...	7	21	5.3	2.5	7	.1	1.0	82	0
JUL									
11...	7	21	5.4	2.4	6	.1	.7	82	0
AUG									
08...	5	21	5.8	3.3	8	.2	.9	85	1
SEP									
12...	4	22	5.7	2.5	6	.1	.7	83	4

12395502 PEND OREILLE RIVER AT U.S. HIGHWAY 2, AT NEWPORT, WA--Continued

WATER QUALITY DATA

DATE	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT + 1977									
25...	82	20	10	1.0	.00	.01	.01	.00	.00
NOV									
15...	80	3.9	9.3	1.0	--	.01	.02	.00	.00
DEC									
07...	76	7.5	8.6	6.0	.02	.04	.01	.01	.03
JAN + 1978									
11...	78	6.1	9.6	1.1	.58	.03	.02	.00	.00
FEB									
07...	80	4.9	10	.9	.03	.03	.01	.00	.00
MAR									
07...	81	6.3	8.8	1.3	1.2	.02	.02	.00	.00
APR									
12...	75	.7	10	1.3	.04	.04	.02	.00	.00
MAY									
09...	70	6.8	9.6	1.6	.02	.09	.03	.00	.00
JUN									
06...	67	.1	8.8	1.5	.01	.04	.01	.00	.00
JUL									
11...	67	.2	6.0	1.6	.01	.03	.01	.00	.00
AUG									
08...	71	.2	7.8	1.3	.02	.03	.02	.01	.03
SEP									
12...	75	.5	8.8	1.3	.00	.01	.01	.00	.00

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	LEAD, DIS-SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT + 1977									
25...	1	0	0	2	11	.1	0	0	10
NOV									
15...	1	0	0	2	26	.0	0	0	0
DEC									
07...	1	0	0	1	23	.0	0	0	10
JAN + 1978									
11...	1	0	0	1	16	.0	0	0	0
FEB									
07...	2	0	0	1	20	.0	0	1	0
MAR									
07...	1	0	0	4	21	.0	0	0	0
APR									
12...	1	0	0	2	4	.0	0	0	0
MAY									
09...	1	1	15	2	26	.0	0	0	5
JUN									
06...	1	0	5	2	21	.0	0	0	5
JUL									
11...	1	<1	0	1	20	.0	0	0	<3
AUG									
08...	1	0	0	0	10	.2	0	0	0
SEP									
12...	1	1	0	1	5	.0	0	0	10

12396500 PEND OREILLE RIVER BELOW BOX CANYON, NEAR IONE, WA

LOCATION.--Lat 48°46'52", long 117°24'55", in SE¼NE¼ sec.19, T.38 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 1,000 ft (305 m) downstream from Box Canyon Dam, 2.8 mi (4.5 km) north of Ione, and at mile 34.3 (55.2 km).

DRAINAGE AREA.--24,900 mi² (64,500 km²), approximately.

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 29, 1954, nonrecording gage at site 300 ft (91 m) upstream at same datum. Mar. 29, to Aug. 25, 1954, nonrecording gage at present site and datum. Since Aug. 20, 1967, auxiliary water-stage recorder 1.2 mi (1.9 km) downstream at same datum.

REMARKS.--Records excellent. Flow completely regulated by Box Canyon Reservoir, 1,000 ft (305 m) upstream since June 1955 and by Pend Oreille Lake, Flathead Lake, Hungry Horse Reservoir, and by several smaller reservoirs and powerplants. In 1946 there were diversions for irrigation of 340,000 acres (1,380 km²) above the station.

AVERAGE DISCHARGE.--26 years, 28,420 ft³/s (804.9 m³/s) 20,590,000 acre-ft/yr (25,400 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136,000 ft³/s (3,850 m³/s) June 13, 14, 1972; maximum elevation, 2,014.54 ft (614.032 m) June 14, 1972; minimum observed discharge, 125 ft³/s (3.54 m³/s) Apr. 23, 1967 (result of regulation).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1948 reached elevation of 2,018.00 ft (615.086 m), from flood-marks, discharge, 167,000 ft³/s (4,730 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 67,600 ft³/s (1,910 m³/s) June 2; maximum elevation, 2,002.06 ft (610.228 m) June 2; minimum daily discharge, 10,500 ft³/s (297 m³/s) Aug. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19000	27000	13600	13000	18200	18000	28600	34400	63400	55300	21000	13200
2	18900	26400	15100	13000	18300	17900	28700	31100	64900	53400	17800	14500
3	18700	26100	17400	13500	19600	17700	30500	32200	63900	53000	19000	15100
4	19600	25700	18000	15900	19300	17100	33800	33800	63100	49700	19500	14800
5	22100	25400	18700	16200	18800	15300	33100	40900	61100	48900	19500	13600
6	22400	25500	20400	16300	18900	13800	33700	46800	59900	47300	21000	14600
7	20900	26300	20700	17000	18800	12700	35000	47000	60200	47700	19500	13100
8	17400	26600	20300	17100	19300	15400	33800	46500	60200	50300	16800	15800
9	16100	25900	18500	17900	19600	15900	33300	44900	60700	50600	15100	15300
10	16900	25800	16100	18800	19100	13700	33100	44800	60800	49600	15400	14400
11	20000	26200	15600	20200	18400	13400	32100	43400	60900	46400	12100	14900
12	20900	26500	16200	20800	17900	13600	32000	44600	60500	45600	13000	14600
13	21600	26400	17900	20700	18300	13600	32800	48000	59300	44600	12500	13000
14	21900	26200	21200	18300	18600	16800	30400	46300	53900	40100	13500	11800
15	20900	26700	22300	17400	20100	17200	31000	47700	50100	34000	14500	13500
16	17100	26600	25200	17400	20400	17500	31400	49600	47800	30500	13000	13700
17	16900	26000	24100	17300	20500	17200	32000	53000	46500	30100	13500	13600
18	20600	25800	25300	19400	20600	16200	33500	56400	46200	28600	14500	13700
19	24300	23300	23700	19700	20200	16900	37700	55100	44900	26600	12500	15700
20	24900	23300	22400	19500	19900	17800	35500	55800	42900	26800	12000	20900
21	26000	22000	21500	19300	18900	18900	35400	56600	42500	32000	14000	22600
22	26200	22000	20200	19300	17500	17400	30400	57200	40700	33600	14500	22300
23	25600	21000	18400	18500	16500	19100	31900	59200	39500	33500	12500	22400
24	26600	19600	16400	17200	17100	21000	36900	60300	42600	30700	11500	22400
25	27700	16700	16100	16700	16900	22300	37700	60000	43600	25800	10500	22800
26	28200	15400	16500	17100	16800	23100	38000	59300	46300	27600	12500	22900
27	28100	14800	15900	17300	16900	23400	38700	59100	55000	16500	12500	22400
28	24400	14600	12000	17200	17500	23400	37200	58300	59900	19100	13000	22200
29	25800	14200	12500	17000	---	25500	34400	58800	60700	19900	14500	22800
30	26100	14000	12000	18300	---	26300	30600	59600	57700	21500	14900	22900
31	26100	---	12400	18900	---	27400	---	62500	---	21000	13700	---
TOTAL	691900	492000	566600	546200	523200	564700	1003200	1552400	1619700	1140300	459000	515700
MEAN	22320	23870	18280	17620	18690	18220	33440	50080	53990	36780	14810	17190
MAX	28200	27900	25300	20800	20600	27400	38700	62500	64900	55300	21000	22900
MIN	16100	14000	12000	13000	16500	12700	28600	31100	39500	16500	10500	11800
AC-FT	1372000	1373000	1124000	1083000	1038000	1120000	1990000	3079000	3213000	2262000	910400	1023000

CAL YR 1977 TOTAL 5360970 MEAN 14690 MAX 28200 MIN 3190 AC-FT 10630000
WTR YR 1978 TOTAL 9874900 MEAN 27050 MAX 64900 MIN 10500 AC-FT 19590000

12397000 SULLIVAN LAKE NEAR METALINE FALLS, WA

LOCATION.--Lat 48°50'21", long 117°17'15", in SW¼NE¼ sec.31, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, 200 ft (61 m) south of dam at outlet, 4.0 mi (6.4 km) southeast of Metaline Falls.

DRAINAGE AREA.--51.2 mi^2 (132.6 km^2).

PERIOD OF RECORD.--May 1912 to September 1923, January 1959 to current year (fragmentary).

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Pend Oreille County Public Utility District). Prior to Sept. 30, 1923, nonrecording gage on dam at outlet of lake at different datum.

REMARKS.--Lake elevation is controlled by concrete dam. Some small diversions for domestic use.

COOPERATION.--Elevation record furnished by Public Utility District No. 1 of Pend Oreille County.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 2,589.94 ft (789.414 m) July 15, 1975; minimum observed, 2,564.00 ft (781.507 m) on many days during period Jan. 6 to Mar. 25, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum elevation observed, 2,589.50 ft (789.280 m) June 7; minimum observed, 2,564.35 ft (781.614 m) Mar. 15.

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	2574.65	2565.82	---	2564.47	---	---	2571.35	2586.95	2588.40	---	2588.05
2	---	2574.30	---	---	2564.45	---	2565.85	2571.80	2587.35	---	---	---
3	2575.30	2573.95	---	2564.78	---	2564.36	2566.00	2572.25	2587.90	---	---	---
4	---	2573.80	---	---	---	---	2566.15	2572.70	2588.40	---	---	---
5	2575.29	2573.55	---	2564.68	---	---	2566.35	2573.10	2589.00	2588.40	---	---
6	---	2573.25	---	---	---	---	2566.50	2573.50	2589.30	---	---	---
7	---	2573.00	---	---	---	---	2566.65	2573.70	2589.50	---	2588.15	2588.04
8	---	2572.80	---	---	---	---	2566.80	2574.00	2589.40	---	---	2588.15
9	---	2572.65	---	---	---	---	2566.95	2574.40	2589.30	---	---	---
10	2575.30	2572.40	---	---	---	---	2567.10	2574.80	2589.10	---	---	---
11	---	---	---	2564.72	---	---	2567.20	2575.40	2588.95	2588.35	---	---
12	---	---	---	---	---	---	2567.35	2575.90	2588.65	2588.35	---	---
13	---	---	---	---	---	---	2567.50	2576.40	2588.65	---	---	---
14	---	---	---	---	---	---	2567.55	2577.00	2588.65	---	2588.10	---
15	---	---	2565.08	---	---	2564.35	2567.70	2577.60	2588.55	---	---	2588.20
16	---	---	---	---	---	---	2567.85	2578.40	2588.45	---	---	---
17	2575.35	---	---	---	---	---	2568.00	2579.07	2588.40	2588.35	---	---
18	---	---	---	---	---	---	2568.05	2579.40	2588.20	---	---	---
19	---	---	---	2564.60	---	---	2568.15	2580.40	2588.10	---	---	---
20	---	---	---	---	---	---	2568.30	2581.10	2588.10	---	---	---
21	---	---	---	---	---	---	2568.55	2581.70	2588.25	---	2588.05	---
22	---	---	2564.90	---	---	2564.39	2568.70	2582.40	2588.40	---	---	2588.25
23	---	---	---	---	---	---	2568.85	2583.20	2588.50	---	---	---
24	2575.35	---	---	---	---	---	2569.00	2583.75	2588.50	2588.35	---	---
25	---	---	---	---	---	---	2569.15	2584.10	2588.50	---	---	---
26	---	---	---	---	---	---	2569.30	2584.60	2588.50	---	---	---
27	---	---	---	---	---	2564.70	2569.60	2585.00	2588.50	---	---	---
28	2575.25	---	---	---	---	---	2570.00	2585.40	2588.45	---	2588.00	---
29	2575.15	---	---	---	---	---	2570.43	2585.80	2588.40	---	---	---
30	2574.90	2565.90	---	---	---	---	2570.90	2586.25	2588.40	---	---	2588.35
31	2574.68	---	---	---	---	---	---	2586.60	---	2588.30	---	---
MEAN	---	---	---	---	---	---	---	2578.76	2588.51	---	---	---
MAX	---	---	---	---	---	---	---	2586.60	2589.50	---	---	---
MIN	---	---	---	---	---	---	---	2571.35	2586.95	---	---	---

12397100 OUTLET CREEK NEAR METALINE FALLS, WA

LOCATION.--Lat 48°50'42", long 117°17'12", in SW¼SE¼ sec.30, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, on right bank 0.1 mi (0.2 km) upstream from mouth, 0.4 mi (0.6 km) downstream from Sullivan Lake Dam, and 4 mi (6.4 km) east of Metaline Falls.

DRAINAGE AREA.--51.5 mi^2 (133.4 km^2).

PERIOD OF RECORD.--January 1959 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,540.2 ft (774.25 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent except those for Oct. 21 to Nov. 30, and Dec. 24 to Jan. 27, which are fair. Flow completely regulated by Sullivan Lake 0.4 mi (0.6 km) upstream (see sta 12397000). No diversions.

AVERAGE DISCHARGE.--19 years, 74.0 ft^3/s (2.096 m^3/s), 53,610 acre-ft/yr (66.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 924 ft^3/s (26.2 m^3/s) May 31, 1969, gage height, 12.26 ft (3.737 m); minimum 1.6 ft^3/s (0.045 m^3/s) part of each day Apr. 9-12, 1973, gage height, 8.76 ft (2.670 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 460 ft^3/s (13.0 m^3/s) June 7, gage height, 11.10 ft (3.383 m); minimum, 1.7 ft^3/s (0.048 m^3/s) Mar. 28-30, gage height, 8.79 ft (2.679 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	140	94	31	20	16	1.9	3.7	15	95	22	22
2	6.6	240	87	30	20	16	2.0	3.7	16	95	22	22
3	6.6	165	78	29	20	16	2.0	3.9	16	92	22	22
4	6.6	130	71	28	20	16	2.0	3.9	18	68	22	22
5	6.6	180	66	28	20	15	2.2	4.2	99	68	22	22
6	6.6	185	63	28	20	15	2.0	4.4	230	67	22	22
7	6.6	155	58	29	20	15	2.2	4.7	369	56	22	22
8	6.6	115	55	29	20	16	2.2	4.7	448	56	22	22
9	6.6	140	56	30	20	16	2.2	5.0	424	56	22	22
10	6.6	155	56	30	19	16	2.2	5.3	392	62	22	22
11	6.6	140	49	31	19	16	2.4	5.6	357	68	22	22
12	6.6	150	46	31	18	16	2.4	5.6	324	68	22	22
13	6.6	155	45	32	18	16	2.4	5.9	303	68	22	22
14	6.6	145	45	32	18	16	2.4	6.6	298	56	22	22
15	6.6	135	45	33	18	16	2.4	6.6	279	42	22	22
16	6.6	130	45	33	18	16	2.6	7.4	275	42	22	22
17	6.3	260	43	34	18	16	2.6	7.4	268	42	22	22
18	6.6	380	42	34	17	16	2.6	7.7	244	42	22	22
19	6.6	370	41	33	16	16	2.6	8.1	192	42	22	22
20	6.6	370	39	30	16	16	2.8	8.5	95	41	22	22
21	6.6	370	39	29	16	16	2.8	8.9	66	41	22	22
22	6.6	360	38	27	16	16	2.8	9.3	66	41	22	22
23	6.6	270	38	26	16	18	3.0	10	90	41	22	22
24	15	170	38	26	16	21	3.0	11	112	34	22	22
25	20	180	37	25	16	24	3.0	12	112	22	22	22
26	20	180	36	25	16	26	3.2	12	124	22	22	22
27	20	160	35	22	16	17	3.2	13	144	22	22	22
28	50	165	35	21	16	1.7	3.2	13	122	22	22	22
29	130	150	34	20	---	1.7	3.4	15	95	22	22	22
30	160	105	33	20	---	1.9	3.4	15	95	22	22	22
31	90	---	32	20	---	1.9	---	16	---	22	22	---
TOTAL	656.5	5950	1519	876	593	462.2	77.1	248.1	5680	1532	682	660
MEAN	21.2	198	49.0	28.3	18.0	14.9	2.57	8.00	189	49.4	22.0	22.0
MAX	160	380	94	34	20	26	3.4	16	448	95	22	22
MIN	6.3	105	32	20	16	1.7	1.9	3.7	15	22	22	22
AC-FT	1300	11800	3010	1740	998	917	153	492	11270	3040	1350	1310

CAL YR 1977 TOTAL 10243.5 MEAN 28.1 MAX 380 MIN 2.0 AC-FT 20320
WTR YR 1978 TOTAL 18845.9 MEAN 51.6 MAX 448 MIN 1.7 AC-FT 37380

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY
(International gaging station)

LOCATION.--Lat 48°59'56", long 117°21'09", in SW¼NE¼ sec.3, T.40 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 0.1 mi (0.2 km) upstream from international boundary, 0.9 mi (1.4 km) downstream from Boundary Dam, 6.0 mi (9.7 km) downstream from Slate Creek, 9.7 mi (15.6 km) north of Metaline Falls and at mile 16.1 (25.9 km).

DRAINAGE AREA.--25,200 mi² (65,300 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1908 to September 1910 (gage heights only), October 1912 to current year. Prior to October 1928, published as Clark Fork at Metaline Falls, October 1928 to September 1937 as Clark Fork below Z Canyon, near Metaline Falls, and October 1938 to September 1964 as "below Z Canyon, near Metaline Falls." Concurrent records published for present site December 1962 to September 1964.

REVISED RECORDS.--WSP 442: 1913. WSP 1716: 1919.

GAGE.--Water-stage recorder. Datum of gage is 1,700 ft (518.21 m) city of Seattle Boundary Dam datum. Prior to Dec. 20, 1928, nonrecording gage at Metaline Falls at datum approximately 1,983.4 ft (604.54 m) National Geodetic Vertical Datum of 1929. Dec. 20, 1928, to Sept. 30, 1964, water-stage recorder at site 1.3 mi (2.1 km) upstream at datum 1,721.18 ft (524.616 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records excellent. Flow regulated by Boundary Reservoir 0.9 mi (1.4 km) upstream beginning April 1967 and by Box Canyon Reservoir beginning June 1955, Pend Oreille Lake beginning June 1952 (see sta 12392500), Flathead Lake beginning April 1938 (see sta 12371500), Hungry Horse Reservoir beginning September 1951 (see sta 12362000) and by several smaller reservoirs and powerplants. In 1946 there were diversions for irrigation of 340,000 acres (1,380 km²) above the station and there probably has not been any appreciable change since that time.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--66 years, 27,330 ft³/s (774.6 m³/s), 19,800,000 acre-ft/yr (24,400 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 171,300 ft³/s (4,850 m³/s) June 13, 1948, gage height, 60.25 ft (18.364 m), site and datum then in use; minimum daily, 200 ft³/s (5.66 m³/s) Aug. 12, 1967, result of regulation; minimum observed, 109 ft³/s (3.09 m³/s) Apr. 23, 1967, result of regulation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1894 reached a stage of 69.0 ft (21.03 m), from floodmarks, at site and datum 1.3 mi (2.1 km) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 66,600 ft³/s (1,890 m³/s) June 2, 3, gage height, 31.92 ft (9.729 m); minimum daily, 9,390 ft³/s (266 m³/s) Aug. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17900	25300	14000	13400	18700	19000	31000	34700	63500	55000	19200	14600
2	17800	27400	17000	13200	17500	18800	27500	35300	65200	54100	16100	14400
3	16700	26800	19900	13700	20000	18300	29000	34100	65000	53300	19100	15400
4	21900	25200	18900	13800	19200	16300	31700	34400	64500	50600	17100	16800
5	17000	25900	21600	17000	19600	15700	34100	39900	63800	49500	19200	13100
6	19400	25700	22200	18300	19200	13600	34100	46300	61700	48400	18700	17100
7	21300	27000	23000	17300	19200	13400	36100	46600	62100	48200	15700	14500
8	20600	25900	22300	17600	19200	15800	34800	46600	61700	50400	13100	17100
9	19700	26500	20700	18300	20400	16400	34300	44900	62400	50900	13400	15000
10	18400	25400	18400	20600	20000	14300	34300	45100	62200	50300	13100	14300
11	20600	26700	17500	20600	18700	14500	34000	44400	62200	47600	10600	15300
12	22400	25900	18900	20800	17900	14400	33100	45100	61700	46100	11800	15400
13	23700	28800	19400	21200	18200	14800	33800	47400	59700	44900	11200	13700
14	22600	26500	21800	19200	18800	15800	33600	47100	55200	40900	12000	14000
15	23400	26800	22500	18300	20400	19200	33400	48200	51800	35500	12300	14400
16	12300	27100	25800	18300	19600	17200	33700	49900	49600	32600	13300	13200
17	21200	27000	26500	18500	19900	17800	34200	52400	48500	32200	11700	12200
18	19200	26400	25700	19600	21900	17200	33700	53400	48000	30700	13400	16100
19	23600	27000	25000	21200	19100	17000	31900	55000	47300	28900	12200	16600
20	26300	20700	22900	20300	18900	18700	36800	56000	45000	28500	11200	20400
21	26700	21100	22600	20200	17500	20100	36700	56900	44700	33700	11300	21800
22	25600	24500	24000	19800	17300	17600	34100	57800	43500	35000	13200	22100
23	30500	22600	20800	18400	16800	19500	33500	59100	41900	34800	12500	22700
24	26400	19200	18200	18000	18300	21200	35200	60200	44500	32300	11300	23500
25	26500	19900	18000	18700	17700	25200	38800	59700	45600	28000	10600	22300
26	27600	15500	16500	18400	17400	22600	39000	59000	47300	24700	9390	23000
27	27200	14400	17600	18000	17300	25700	39300	58600	54100	17800	11100	23500
28	22900	14600	14000	17400	18400	23900	39700	58200	59400	18800	12800	23500
29	28200	15300	14700	17700	---	24600	36200	58400	60600	18300	13900	23400
30	24700	13600	14300	18100	---	28800	33000	59300	58300	19600	14900	23000
31	25600	---	13200	19800	---	29600	---	62400	---	20100	14200	---
TOTAL	696900	704700	617900	565900	527100	589000	1030600	1556600	1660200	1160900	419590	532400
MEAN	22480	23490	19930	18250	18830	19000	34350	50210	55340	37450	13540	17750
MAX	30500	28800	26500	21200	21900	29600	39700	62400	65200	55000	19200	23500
MIN	12300	13600	13200	13200	16800	13400	27500	34100	41900	17800	9390	12200
AC-FT	1382000	1398000	1226000	1122000	1046000	1168000	2044000	3088000	3293000	2303000	832300	1056000

CAL YR 1977 TOTAL 546289Q MEAN 14970 MAX 30500 MIN 2880 AC-FT 10840000
WTR YR 1978 TOTAL 10061790 MEAN 27570 MAX 65200 MIN 9390 AC-FT 19960000

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued
(National Stream-quality Accounting Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1974 to current year.
WATER TEMPERATURE: April 1974 to current year.

INSTRUMENTATION.--Water-quality monitor since April 1974.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. In addition to the water-quality monitor record, samples were collected approximately once a month.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 242 micromhos July 17, 1974; minimum, 62 micromhos April 25, 1975.
WATER TEMPERATURES: Maximum, 24.5°C July 28-30, 1975; minimum, 0.0°C at times during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 198 micromhos Nov. 29, 30; minimum, 124 micromhos May 25, 26, 28, 29.
WATER TEMPERATURES: Maximum, 23.0°C Aug. 6-12; minimum, 0.0°C Jan. 10, 11.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT . 1977												
06...	1315	24600	165	8.2	12.4	2	--	9.8	<1	19	87	5
NOV												
02...	1430	30000	158	7.6	9.5	1	--	9.8	<2	<1	87	5
DEC												
01...	1320	15900	197	8.0	1.4	1	--	11.6	1	<1	91	9
JAN . 1978												
05...	1300	25000	194	7.8	.3	1	--	14.6	1	3	88	12
FEB												
08...	1030	26500	167	7.7	1.6	1	--	15.7	<1	1	89	10
MAR												
09...	1615	19000	179	7.8	2.4	1	--	12.8	<1	<1	89	9
APR												
05...	1200	34600	150	8.1	6.4	2	--	11.8	<1	<1	80	17
MAY												
04...	1130	33300	136	8.0	9.4	2	--	11.4	1	6	73	6
JUN												
01...	1400	63000	129	8.0	11.2	--	1.7	13.2	1	3	70	7
27...	1200	54200	141	8.0	16.6	--	1.8	11.3	<1	5	68	10
JUL												
26...	1430	23400	148	8.0	20.6	--	.90	8.8	--	2	76	5
SEP												
21...	1230	24600	146	7.7	15.6	--	1.8	9.1	<1	10	75	2

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT . 1977												
06...	24	6.5	2.5	6	.1	.9	100	0	82	1.0	7.4	1.1
NOV												
02...	24	6.5	2.8	7	.1	.8	100	0	82	4.0	6.5	1.2
DEC												
01...	25	7.0	2.7	6	.1	.8	100	0	82	1.6	8.1	1.0
JAN . 1978												
05...	24	6.7	2.6	6	.1	.9	92	0	75	2.3	12	1.0
FEB												
08...	25	6.5	2.6	6	.1	.8	97	0	80	3.1	9.8	1.6
MAR												
09...	25	6.5	3.9	9	.2	.8	98	0	80	2.5	9.3	1.1
APR												
05...	24	4.8	1.5	4	.1	.8	76	0	62	1.0	12	1.1
MAY												
04...	21	5.0	2.3	6	.1	.8	82	0	67	1.3	5.5	.9
JUN												
01...	20	4.8	2.4	7	.1	.7	--	--	63	--	8.4	1.3
27...	19	5.0	3.0	9	.2	.9	--	--	58	--	8.1	.8
JUL												
26...	21	5.8	2.4	6	.1	.8	--	--	71	--	6.8	.9
SEP												
21...	21	5.5	3.5	9	.2	1.3	--	--	73	--	8.5	1.3

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

WATER QUALITY DATA

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, ALL + ORG. SUSP. TOTAL (MG/L AS N)
OCT . 1977												
06...	.1	5.4	93	97	.13	6180	22	.01	.02	--	--	--
NOV												
02...	.1	5.8	108	97	.15	6750	0	.01	.00	--	--	--
DEC												
01...	.0	6.1	98	100	.13	4210	0	.01	.01	--	--	--
JAN . 1978												
05...	.1	6.4	105	99	.14	5670	14	.14	.01	--	--	--
FEB												
08...	.1	6.1	94	100	.13	6730	16	.01	.01	.08	.09	.04
MAR												
09...	.1	4.0	90	101	.12	4620	0	.01	.02	.13	.15	.14
APR												
05...	.1	6.3	77	88	.10	7190	2	.00	.03	.13	.16	.01
MAY												
04...	.1	8.1	83	84	.11	7440	7	.02	.01	.32	.33	.10
JUN												
01...	.1	6.6	84	82	.11	14300	42	.02	.00	--	--	--
27...	.1	7.2	80	79	.11	11700	26	.00	.00	.43	.43	.23
JUL												
26...	.1	6.2	82	87	.11	5180	7	.01	.00	.17	.17	.02
SEP												
21...	.1	6.4	91	91	.12	6040	3	.01	.05	.70	.75	.47

DATE	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT . 1977											
06...	.12	--	--	.02	.00	--	--	--	7	465	97
NOV											
02...	.23	--	--	.15	.00	2.5	--	--	3	243	89
DEC											
01...	.05	--	--	.00	.00	1.1	--	--	4	172	98
JAN . 1978											
05...	.20	--	--	.01	.00	--	1.1	.3	1	54	98
FEB											
08...	.05	.10	.44	.02	.01	1.9	--	--	1	72	87
MAR											
09...	.01	.16	.71	.07	.06	1.5	--	--	1	51	100
APR											
05...	.15	.16	.71	.01	.03	--	1.6	.6	3	280	98
MAY											
04...	.23	.35	1.6	.00	.00	2.9	--	--	2	180	94
JUN											
01...	.84	--	--	.00	.00	1.7	--	--	9	1530	64
27...	.20	.43	1.9	.02	.01	3.2	--	--	6	878	95
JUL											
26...	.15	.18	.80	.00	.00	--	6.0	.4	5	316	74
SEP											
21...	.28	.76	3.4	.02	.03	2.7	--	--	6	399	66

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)
OCT . 1977										
06...	1315	1	0	1	400	300	100	<10	10	0
JAN . 1978										
05...	1300	1	0	1	100	100	0	5	4	1
APR										
05...	1200	1	0	1	200	100	100	2	1	1
JUL										
26...	1430	2	0	2	200	0	200	19	15	4

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

WATER QUALITY DATA

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT . 1977										
06...	20	20	0	<50	50	0	<10	9	1	110
JAN . 1978										
05...	0	0	0	0	0	0	11	4	7	60
APR										
05...	10	10	0	0	0	0	3	3	0	270
JUL										
26...	0	0	0	0	0	0	30	20	10	150

DATE	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)
OCT . 1977										
06...	--	80	<100	100	0	20	20	0	.0	.0
JAN . 1978										
05...	--	50	26	24	2	0	0	0	.0	.0
APR										
05...	--	40	61	58	3	20	10	10	.0	.0
JUL										
26...	130	20	35	31	4	20	10	10	.1	.0

DATE	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
OCT . 1977										
06...	.0	0	0	0	<10	10	0	20	10	10
JAN . 1978										
05...	.0	0	0	0	1	1	0	20	10	10
APR										
05...	.0	0	0	0	1	1	0	50	0	50
JUL										
26...	.1	0	0	0	0	0	0	50	30	20

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	166	163	164	159	157	158				---	---	---
2	165	163	164	158	157	158				---	---	---
3	165	162	164	160	159	159				---	---	---
4	165	162	164	162	161	161				---	---	---
5	166	163	165	164	163	163				195	193	194
6	167	163	165	165	164	164				196	194	195
7	165	162	164	167	165	166				195	194	194
8	164	162	163	169	167	168				194	193	193
9	167	160	163	171	170	170				193	191	192
10	166	162	164	172	171	172				192	190	191
11	166	163	164	173	172	172				191	190	190
12	166	163	165	175	174	174				189	188	189
13	170	164	165	175	175	175				189	186	187
14	167	161	164	178	176	177				187	184	185
15	162	156	159	179	178	178				184	183	184
16	162	155	157	180	179	180				184	183	183
17	157	154	155	182	181	181				184	182	183
18	157	154	155	184	182	182				184	182	183
19	159	154	155	185	184	184				184	182	182
20	157	155	155	186	185	185				182	180	181
21	155	148	151	187	185	186				181	179	180
22	153	150	151	188	187	187				180	178	179
23	156	153	154	189	188	188				178	177	178
24	159	156	157	191	189	190				179	177	178
25	158	156	157	192	190	191				182	177	178
26	159	157	157	193	191	192				183	176	179
27	158	157	158	195	193	194				178	176	177
28	159	158	158	196	194	195				178	176	176
29	160	158	158	198	196	196				176	175	176
30	159	157	158	198	197	197				179	175	176
31	160	158	158	---	---	---				176	175	175
MONTH	170	148	160	198	157	178				196	175	184

12398000 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	175	173	174	177	175	176	158	157	157	144	142	144
2	175	172	173	177	174	176	158	154	156	142	138	140
3	173	171	172	177	175	176	155	152	153	139	136	137
4	172	171	172	177	175	176	152	150	151	138	136	137
5	171	170	171	179	175	176	151	149	150	138	136	137
6	170	169	169	184	176	178	152	150	151	136	135	135
7	169	168	168	185	176	179	152	150	151	136	135	135
8	168	167	168	186	176	179	153	151	152	140	136	138
9	169	167	168	192	176	178	153	151	152	141	138	140
10	169	168	168	183	177	178	153	152	153	138	136	137
11	170	167	169	179	177	178	154	152	153	137	136	137
12	171	170	170	178	176	177	154	151	153	138	136	137
13	175	170	171	185	176	177	151	148	149	139	137	138
14	172	170	171	183	175	177	150	148	149	138	135	136
15	172	170	171	178	175	176	152	149	151	135	134	135
16	172	170	171	186	176	177	152	151	151	136	133	135
17	173	171	172	177	175	176	152	150	151	133	129	131
18	173	172	172	175	173	175	152	151	152	129	128	128
19	174	172	173	175	172	174	152	150	151	130	128	129
20	174	172	173	175	172	174	151	150	151	132	130	131
21	174	173	173	176	172	174	151	150	150	131	130	131
22	175	173	174	176	173	174	151	150	151	131	129	130
23	174	173	175	175	171	174	154	151	153	129	128	129
24	175	173	175	174	173	173	154	152	153	128	126	127
25	177	174	176	173	171	172	153	150	151	126	124	125
26	177	175	176	171	169	170	151	150	150	129	124	127
27	178	175	177	169	166	168	151	151	151	129	125	128
28	178	175	176	167	164	165	151	148	150	125	124	125
29	---	---	---	165	161	163	148	146	147	127	124	126
30	---	---	---	161	159	160	146	144	145	127	126	127
31	---	---	---	159	158	158	---	---	---	127	126	127
MONTH	179	167	172	186	158	174	158	144	151	144	124	133

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	129	127	128	140	138	139	141	139	140	148	145	146
2	132	130	131	140	139	139	142	139	140	147	144	146
3	131	130	130	139	138	139	141	139	140	---	---	---
4	130	129	130	140	138	139	142	140	141	---	---	---
5	131	130	130	141	139	140	142	141	142	---	---	---
6	133	131	132	142	140	141	143	141	142	---	---	---
7	134	133	133	142	140	141	144	142	143	---	---	---
8	133	132	132	141	140	140	145	142	144	---	---	---
9	133	131	132	141	139	140	146	143	145	---	---	---
10	132	131	131	139	138	138	146	144	145	---	---	---
11	133	132	132	138	136	137	146	144	145	---	---	---
12	133	132	132	138	136	137	146	144	145	---	---	---
13	134	132	133	138	136	137	147	145	146	---	---	---
14	134	133	133	138	136	137	147	145	146	---	---	---
15	134	133	133	138	137	137	148	146	147	---	---	---
16	134	134	134	139	138	138	148	146	147	---	---	---
17	135	134	134	139	137	138	148	145	147	---	---	---
18	136	134	135	139	138	139	147	145	146	---	---	---
19	137	135	136	139	138	138	147	145	147	---	---	---
20	137	136	136	139	137	138	147	145	146	---	---	---
21	137	136	136	140	137	138	147	145	146	147	147	147
22	137	136	137	140	138	139	147	145	145	147	146	147
23	137	136	136	140	138	139	146	144	145	148	147	147
24	139	136	138	141	139	140	149	144	145	148	147	147
25	141	139	140	141	139	140	150	144	146	150	148	149
26	141	140	140	141	139	140	150	143	145	151	149	150
27	143	140	141	141	139	140	149	143	145	151	149	150
28	141	139	140	141	139	140	148	144	145	151	150	150
29	143	139	141	141	140	141	148	144	145	151	150	151
30	141	139	140	141	140	141	147	145	146	152	151	151
31	---	---	---	142	140	141	147	145	146	---	---	---
MONTH	143	127	135	142	136	139	150	139	145	152	144	148
YEAR	198	124	156									

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	14.0	14.0	14.0	10.0	10.0	10.0				---	---	---
2	14.0	13.5	14.0	9.5	9.5	9.5				---	---	---
3	13.5	13.5	13.5	9.0	9.0	9.0				---	---	---
4	13.5	13.0	13.5	9.0	8.5	9.0				---	---	---
5	13.0	13.0	13.0	8.5	8.5	8.5				.5	.5	.5
6	13.0	12.5	13.0	8.5	8.0	8.0				.5	.5	.5
7	12.5	12.5	12.5	8.0	8.0	8.0				.5	.5	.5
8	12.5	12.5	12.5	8.0	8.0	8.0				.5	.5	.5
9	12.5	12.0	12.5	7.5	7.5	7.5				.5	.5	.5
10	12.0	12.0	12.0	7.5	7.5	7.5				.5	.0	.5
11	12.0	12.0	12.0	7.5	7.0	7.0				.5	.0	.5
12	12.0	11.5	12.0	7.0	7.0	7.0				.5	.5	.5
13	11.5	11.5	11.5	7.0	7.0	7.0				.5	.5	.5
14	11.5	11.0	11.5	7.0	7.0	7.0				.5	.5	.5
15	11.0	11.0	11.0	7.0	7.0	7.0				.5	.5	.5
16	11.5	11.0	11.0	7.0	7.0	7.0				.5	.5	.5
17	11.5	11.0	11.0	7.0	7.0	7.0				.5	.5	.5
18	11.5	11.0	11.5	7.0	7.0	7.0				.5	.5	.5
19	11.5	11.0	11.5	6.5	6.5	6.5				.5	.5	.5
20	11.5	11.5	11.5	6.5	5.5	6.0				.5	.5	.5
21	11.5	11.5	11.5	5.5	5.0	5.5				.5	.5	.5
22	11.5	11.5	11.5	5.0	4.0	4.5				.5	.5	.5
23	11.5	11.0	11.0	4.0	3.0	4.0				.5	.5	.5
24	11.0	11.0	11.0	3.5	2.5	3.0				.5	.5	.5
25	11.0	11.0	11.0	2.5	2.0	2.5				1.0	.5	.5
26	11.0	11.0	11.0	2.0	1.5	2.0				1.0	1.0	1.0
27	11.0	10.5	11.0	1.5	1.5	1.5				1.5	1.0	1.5
28	10.5	10.5	10.5	1.5	1.0	1.5				1.5	1.5	1.5
29	10.5	10.5	10.5	1.5	1.5	1.5				1.5	1.5	1.5
30	10.5	10.0	10.0	1.5	1.5	1.5				1.5	1.0	1.5
31	10.0	10.0	10.0	---	---	---				2.0	1.5	1.5
MONTH	14.0	10.0	11.5	10.0	1.0	6.0				2.0	.0	.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1.5	1.5	1.5	3.0	3.0	3.0	6.5	6.5	6.5	9.0	8.5	9.0
2	1.5	1.5	1.5	3.0	3.0	3.0	6.5	6.5	6.5	9.5	9.0	9.5
3	1.5	1.5	1.5	3.0	2.5	3.0	6.5	6.5	6.5	9.5	9.5	9.5
4	1.5	1.5	1.5	3.0	2.5	2.5	6.5	6.5	6.5	9.5	9.5	9.5
5	1.5	1.5	1.5	2.5	2.5	2.5	6.5	6.0	6.5	9.5	9.5	9.5
6	1.5	1.5	1.5	2.5	2.5	2.5	6.0	6.0	6.0	10.0	9.5	9.5
7	1.5	1.5	1.5	2.5	2.5	2.5	6.0	6.0	6.0	10.0	9.5	9.5
8	1.5	1.5	1.5	2.5	2.5	2.5	6.0	6.0	6.0	10.0	9.5	9.5
9	1.5	1.5	1.5	2.5	2.5	2.5	6.0	5.5	6.0	10.0	9.5	10.0
10	1.5	1.0	1.5	2.5	2.0	2.5	6.5	6.0	6.0	10.5	10.5	10.5
11	1.5	1.0	1.5	2.5	2.5	2.5	6.5	6.5	6.5	11.0	10.5	11.0
12	2.0	1.5	1.5	2.5	2.5	2.5	6.5	6.5	6.5	10.5	10.5	10.5
13	2.0	1.5	2.0	2.5	2.0	2.5	7.0	6.5	7.0	10.5	10.5	10.5
14	2.0	2.0	2.0	2.5	2.0	2.0	7.0	7.0	7.0	10.5	10.0	10.0
15	2.0	2.0	2.0	2.5	2.0	2.5	7.0	7.0	7.0	10.0	9.5	10.0
16	2.0	2.0	2.0	3.0	2.5	3.0	7.0	7.0	7.0	9.5	9.5	9.5
17	2.0	2.0	2.0	3.5	3.0	3.5	7.0	6.5	7.0	10.0	9.5	10.0
18	2.0	2.0	2.0	3.5	3.5	3.5	7.0	6.5	6.5	10.5	10.0	10.5
19	2.0	1.5	2.0	4.0	3.5	3.5	7.0	6.5	7.0	10.5	10.5	10.5
20	1.5	1.5	1.5	4.0	3.5	4.0	7.5	7.0	7.5	11.0	10.5	10.5
21	1.5	1.0	1.5	4.5	4.0	4.5	8.0	7.5	8.0	11.5	11.0	11.5
22	1.5	1.0	1.5	5.0	4.5	5.0	8.0	7.5	8.0	12.0	12.0	12.0
23	2.0	1.5	2.0	5.5	5.0	5.0	7.5	7.5	7.5	12.5	12.0	12.0
24	2.5	2.0	2.5	5.5	5.5	5.5	7.5	7.5	7.5	12.0	11.5	11.5
25	3.0	2.5	2.5	6.0	6.0	6.0	8.0	7.5	8.0	11.5	11.0	11.5
26	3.0	3.0	3.0	6.5	6.0	6.0	7.5	7.5	7.5	11.0	10.5	10.5
27	3.0	3.0	3.0	6.5	6.5	6.5	7.5	7.5	7.5	11.0	10.5	10.5
28	3.0	3.0	3.0	6.5	6.0	6.0	8.0	7.5	8.0	11.0	11.0	11.0
29	---	---	---	6.5	6.0	6.5	8.5	8.0	8.5	11.0	11.0	11.0
30	---	---	---	7.0	6.5	6.5	8.5	8.5	8.5	11.0	11.0	11.0
31	---	---	---	7.0	6.5	7.0	---	---	---	11.0	11.0	11.0
MONTH	3.0	1.0	2.0	7.0	2.0	4.0	8.5	5.5	7.0	12.5	8.5	10.5

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	11.0	11.0	11.0	18.5	18.5	18.5	22.0	22.0	22.0	18.5	18.5	18.5
2	11.5	11.0	11.5	18.5	18.5	18.5	22.5	22.0	22.0	18.5	18.5	18.5
3	12.5	11.5	12.0	18.5	18.5	18.5	22.5	22.0	22.0	---	---	---
4	13.0	12.5	13.0	18.5	18.5	18.5	22.5	22.0	22.5	---	---	---
5	13.5	13.0	13.5	18.5	18.5	18.5	22.5	22.5	22.5	---	---	---
6	13.5	13.5	13.5	18.5	18.0	18.5	23.0	22.5	22.5	---	---	---
7	14.0	14.0	14.0	18.0	18.0	18.0	23.0	22.5	23.0	---	---	---
8	14.5	14.0	14.5	18.5	18.0	18.0	23.0	23.0	23.0	---	---	---
9	15.0	14.5	14.5	18.5	18.5	18.5	23.0	23.0	23.0	---	---	---
10	15.0	14.0	14.5	18.5	18.5	18.5	23.0	23.0	23.0	---	---	---
11	14.0	14.0	14.0	19.0	18.5	19.0	23.0	22.5	23.0	---	---	---
12	14.5	14.0	14.0	19.0	19.0	19.0	23.0	22.5	22.5	---	---	---
13	14.0	13.5	14.0	19.0	19.0	19.0	22.5	22.5	22.5	---	---	---
14	14.0	13.5	14.0	19.5	19.0	19.5	22.5	22.0	22.5	---	---	---
15	14.0	14.0	14.0	19.5	19.0	19.5	22.0	22.0	22.0	---	---	---
16	14.5	14.0	14.5	19.5	19.5	19.5	22.0	21.5	21.5	---	---	---
17	14.5	14.0	14.5	20.0	19.5	19.5	21.5	21.0	21.5	---	---	---
18	14.5	14.0	14.0	20.0	19.5	20.0	21.0	20.5	21.0	---	---	---
19	15.0	14.0	14.5	19.5	19.5	19.5	20.5	20.0	20.5	---	---	---
20	15.0	15.0	15.0	19.5	19.5	19.5	20.0	20.0	20.0	---	---	---
21	16.0	15.0	15.5	20.0	19.5	20.0	20.0	19.5	20.0	15.5	15.5	15.5
22	16.5	16.0	16.5	20.5	20.0	20.5	19.5	19.5	19.5	15.5	15.0	15.0
23	17.0	16.5	17.0	20.5	20.0	20.0	19.5	19.0	19.0	15.0	15.0	15.0
24	17.0	17.0	17.0	20.0	19.5	20.0	19.5	19.0	19.0	15.0	15.0	15.0
25	17.0	17.0	17.0	20.5	20.0	20.0	19.0	18.5	19.0	15.0	14.5	14.5
26	17.0	17.0	17.0	21.0	20.5	20.5	19.0	18.5	19.0	15.0	14.5	14.5
27	17.0	16.5	16.5	21.0	21.0	21.0	19.0	18.5	18.5	15.0	15.0	15.0
28	17.5	16.5	17.5	21.5	21.0	21.0	18.5	18.5	18.5	15.0	15.0	15.0
29	17.5	17.0	17.5	21.5	21.0	21.5	18.5	18.5	18.5	15.5	15.0	15.5
30	18.5	17.5	18.0	21.5	21.5	21.5	18.5	18.5	18.5	15.0	15.0	15.0
31	---	---	---	22.0	21.5	21.5	18.5	18.5	18.5	---	---	---
MONTH	18.5	11.0	15.0	22.0	18.0	19.5	23.0	18.5	21.0	18.5	14.5	15.5
YEAR	23.0	.0	10.0									

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE TIME	NOV 2,77 1430	MAR 9,78 1615	MAY 4,78 1130	JUN 1,78 1400	JUN 27,78 1200	JUL 26,78 1430
TOTAL CELLS/ML	1300	1900	3000	6300	7500	36000
DIVERSITY: DIVISION	0.9	1.1	1.2	1.5	1.3	0.5
.CLASS	0.9	1.1	1.4	1.5	1.4	0.5
..ORDER	1.7	2.0	2.2	2.3	2.2	1.4
...FAMILY	2.7	2.2	2.5	2.8	2.5	1.5
....GENUS	3.3	2.3	2.8	3.1	3.1	1.6

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...MICRACTINIACEAE												
....MICRACTINIUM	--	-	--	-	--	-	--	-	250	3	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	140	11	100	5	580#	19	1200#	19	93	1	*	0
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-	*	0
....OOCYSTIS	--	-	--	-	--	-	68	1	--	-	*	0
...SCENEDESMACEAE												
....SCENEDESMUS	69	5	--	-	--	-	--	-	--	-	--	-
....TETRASTRUM	69	5	--	-	--	-	--	-	--	-	--	-
..TETRASPORALES												
...PALMELLACEAE												
....GLOEOCYSTIS	--	-	--	-	--	-	120	2	320	4	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CARTERIA	17	1	--	-	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	*	0	83	3	*	0	46	1	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....COSMARIUM	--	-	--	-	--	-	--	-	--	-	*	0
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	150	12	170	9	950#	32	610	10	620	8	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

Additional phytoplankton and periphyton data available from District office in Tacoma.

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE TIME	NOV 2,77 1430		MAR 9,78 1615		MAY 4,78 1130		JUN 1,78 1400		JUN 27,78 1200		JUL 26,78 1430	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
....MELOSIRA	170	14	--	-	--	-	220	4	--	-	1100	3
....STEPHANODISCUS	17	1	--	-	41	1	--	-	250	3	--	-
...RHIZOSOLENIACEAE												
....RHIZOSOLENIA	17	1	--	-	--	-	--	-	210	3	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	--	-	--	-	46	1	--	-
....COCCONEIS	17	1	*	0	--	-	--	-	*	0	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	*	0	--	-	--	-	--	-	--	-
....EPITHEMIA	--	-	--	-	--	-	*	0	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	--	-	*	0	--	-
...FRAGILARIACEAE												
....ASTERIONELLA	69	5	190	10	480#	16	200	3	420	6	1900	5
....FRAGILARIA	--	-	--	-	--	-	370	4	--	-	200	1
....SYNEDRA	120	9	51	3	210	7	--	-	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	17	1	--	-	--	-	*	0	*	0	--	-
...NAVICULACEAE												
....DIPLONEIS	--	-	--	-	--	-	34	1	--	-	--	-
....MASTOGLOIA	--	-	--	-	--	-	--	-	--	-	*	0
....NAVICULA	17	1	13	1	62	2	--	-	46	1	--	-
....PINNULARIA	--	-	--	-	--	-	--	-	*	0	--	-
...NITZSCHIACEAE												
....NITZSCHIA	--	-	19	1	170	6	600	9	280	4	*	0
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	*	0	--	-
...TABELLARIACEAE												
....TABELLARIA	340#	27	--	-	--	-	390	6	--	-	*	0
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....DINOBRYON	--	-	--	-	140	5	--	-	69	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCCOCCALES												
...CHROCCOCCACEAE												
....ANACYSTIS	34	3	640#	34	290	10	1800#	28	1300#	18	11000#	30
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	--	-	*	0
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	690#	36	--	-	680	11	760	10	21000#	58
..CHROCCOCCALES												
...CHROCCOCCACEAE												
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-	2600#	34	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....TRACHELOMONAS	--	-	--	-	--	-	--	-	69	1	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%
Additional phytoplankton and periphyton data available from District office in Tacoma.

12398900 SALMO RIVER NEAR SALMO, BRITISH COLUMBIA

LOCATION.--Lat 49°04'07", long 117°16'37", on Salmo-Nelway highway, 500 ft (152 m) downstream from South Fork Salmo River and 10 mi (16.1 km) south of Salmo, and at mile 7.3 (11.7 km).

DRAINAGE AREA.--476 mi^2 (1,233 km^2).

PERIOD OF RECORD.--October 1960 to current year in reports of Geological Survey. March 1949 to September 1960 in reports of Department of Northern Affairs and National Resources, Canada.

REVISED RECORDS.--WRD Wash. 1973: Drainage area.

GAGE.--Water-stage recorder.

COOPERATION.--Records furnished by Department of the Environment, Canada.

AVERAGE DISCHARGE.--29 years, 1,133 ft^3/s (32.09 m^3/s) 820,900 acre-ft/yr (1,010 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,300 ft^3/s (462 m^3/s) June 2, 1968; minimum, 50 ft^3/s (1.42 m^3/s) Dec. 26, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,670 ft^3/s (246 m^3/s) June 5, gage height, 6.80 ft (2.073 m); minimum daily, 201 ft^3/s (5.69 m^3/s) Jan. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	338	357	331	299	241	240	2250	4160	3250	2410	494	633
2	324	638	335	304	238	213	1990	4390	3960	2100	473	609
3	308	511	326	394	233	217	1740	4390	5350	2050	445	535
4	298	455	314	416	236	252	1630	3690	6680	2040	430	487
5	291	431	303	412	233	253	1540	3120	7450	1880	412	481
6	281	409	380	414	276	244	1450	2760	7440	1780	398	499
7	297	432	291	367	276	240	1370	2690	6470	1720	376	507
8	309	370	248	345	274	273	1380	2800	6320	1660	362	799
9	325	385	260	328	272	286	1410	3500	6560	1590	346	826
10	298	376	311	299	261	298	1490	4260	5230	1520	331	766
11	282	385	319	290	254	298	1620	3970	4000	1380	321	749
12	276	381	365	288	244	311	1590	3510	3590	1240	329	715
13	293	408	362	275	228	305	1570	3260	4170	1150	374	665
14	282	445	425	269	265	308	1500	4590	4280	1100	343	634
15	270	422	477	267	252	296	1450	5380	3660	1040	401	664
16	264	398	471	259	246	309	1420	5340	3310	1060	530	644
17	255	382	434	255	240	300	1400	4730	3160	1200	548	600
18	263	368	414	254	245	300	1390	4590	3560	1100	449	564
19	253	330	391	250	245	315	1390	4860	3800	985	448	537
20	244	242	359	249	242	335	1880	5460	3360	899	486	512
21	235	209	312	246	242	380	1970	6200	3510	835	440	569
22	234	293	356	252	244	430	1870	6620	3640	783	486	735
23	232	327	353	239	252	600	1760	4910	3550	750	444	933
24	237	334	259	241	255	1200	1700	4130	3260	741	424	916
25	277	348	235	245	250	1350	1720	3600	3130	704	544	822
26	294	352	315	242	249	1410	2270	3100	2890	673	575	767
27	284	349	322	241	251	1600	3350	2890	2730	692	488	737
28	266	347	329	239	260	1750	4410	3260	2780	633	440	733
29	311	340	325	235	---	2100	4830	3660	2850	591	399	709
30	366	331	309	201	---	2410	4460	3280	2680	552	379	675
31	370	---	300	234	---	2490	---	3100	---	518	424	---
TOTAL	8857	11355	10451	8849	7004	21313	59800	126200	126620	37376	13251	20022
MEAN	286	379	337	285	250	688	1993	4071	4221	1206	427	667
MAX	370	638	477	416	276	2490	4830	6620	7450	2410	575	933
MIN	232	209	235	201	228	213	1370	2690	2680	518	321	481
AC-FT	17570	22520	20730	17550	13890	42270	118600	250300	251200	74140	26280	39710

CAL YR 1977 TOTAL 228635 MEAN 626 MAX 4510 MIN 150 AC-FT 453500
WTR YR 1978 TOTAL 451098 MEAN 1236 MAX 7450 MIN 201 AC-FT 894800

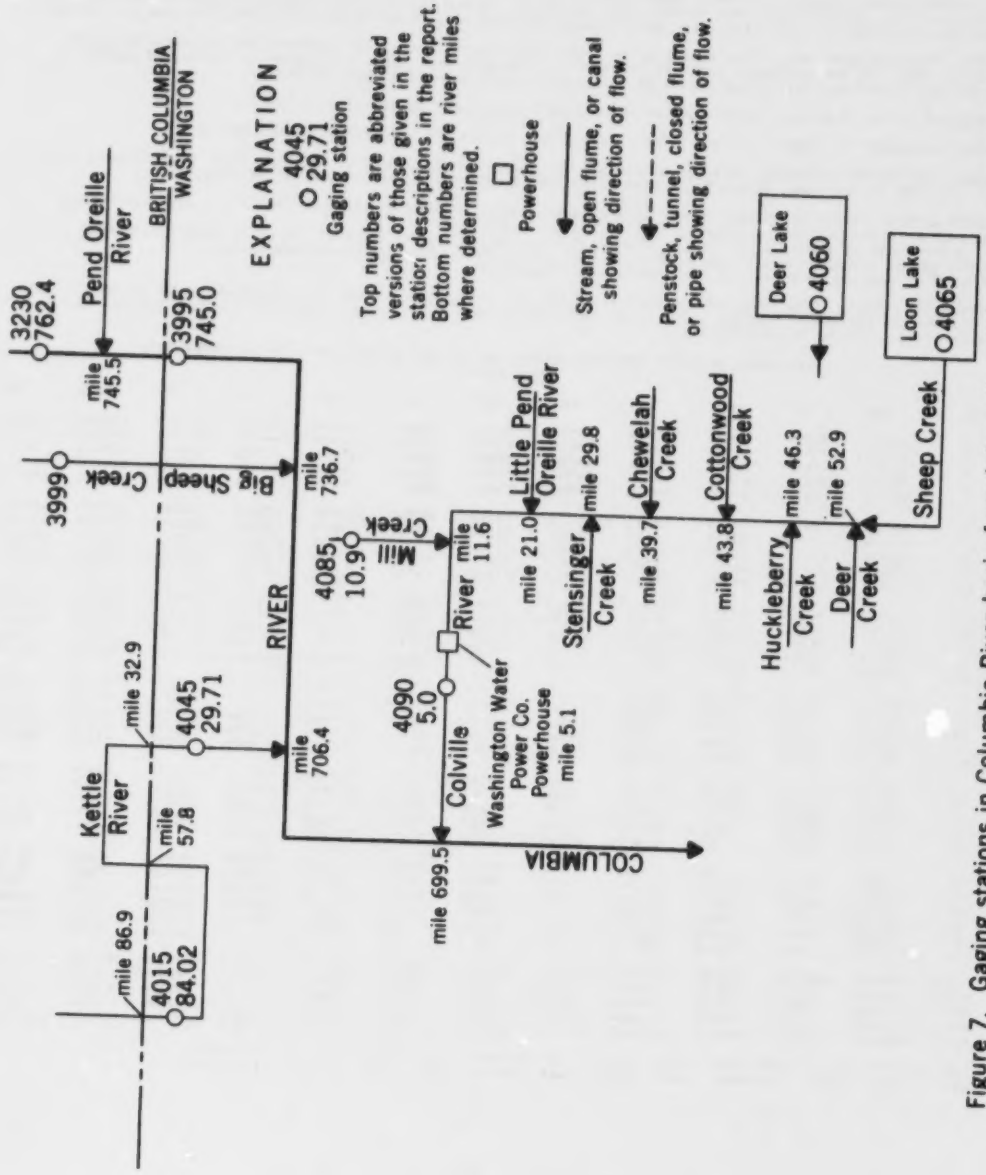

Figure 7. Gaging stations in Columbia River basin from International Boundary to Colville River.

12399500 COLUMBIA RIVER AT INTERNATIONAL BOUNDARY
(International gaging station)

LOCATION.--Lat 49°00'03", long 117°37'42", in NE¼SE¼ sec.4, T.40 N., R.41 E., Stevens County, Hydrologic Unit 17020001, on left bank at international boundary, 0.5 mi (0.8 km) downstream from Pend Oreille River, and at mile 745.0 (1,198.7 km).

DRAINAGE AREA.--59,700 mi² (154,600 km²), approximately.

PERIOD OF RECORD.--October 1937 to current year. Prior to March 1938 monthly discharge only, published in WSP 1316.

REVISED RECORDS.--WSP 932: 1937(m), 1938(M), 1939(m).

GAGE.--Water-stage recorder. Datum of gage is 0.00 ft (0.000 m) Bureau of Reclamation 1937 datum. Prior to Apr. 27, 1939, nonrecording gage at same site and datum. Since May 31, 1942, auxiliary water-stage recorder and Jan. 1 to May 30, 1942, auxiliary nonrecording gage 2.2 mi (3.5 km) downstream from base gage at same datum.

REMARKS.--Records excellent. Flow regulated by eight major reservoirs and by numerous smaller reservoirs and powerplants. It was estimated that 346,700 acres (1,400 km²) were under irrigation in the United States in 1946 with diversions for irrigation of an additional 35,000 acres (142 km²) in Canada.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--41 years, 100,500 ft³/s (2,846 m³/s), 72,810,000 acre-ft/yr (89,800 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 550,100 ft³/s (15,600 m³/s) June 12, 1948, elevation, 1,338.13 ft (407.862 m); minimum, 18,000 ft³/s (510 m³/s) Feb. 7, 1954, elevation, 1,289.38 ft (393.003 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a stage of 1,346 ft (410.3 m), from information by Bureau of Reclamation, discharge, 680,000 ft³/s (19,300 m³/s).

A discharge of about 12,900 ft³/s (365 m³/s) occurred Jan. 30 or 31, 1937, based on information from other gaging stations, elevation, 1,287.9 ft (392.55 m), from rating curve extended below 1,291.6 ft (393.68 m) and may have been as low sometime in January 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 160,000 ft³/s (4,530 m³/s) May 22, elevation, 1,309.65 ft (399.181 m); maximum elevation, 1,309.83 ft (399.236 m) Sept. 8; minimum, 32,100 ft³/s (909 m³/s) Dec. 9, elevation, 1,293.46 ft (394.247 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66700	75800	65400	51700	59400	82300	88200	104000	146000	126000	101000	69800
2	65100	77000	74800	61500	60800	83000	81900	106000	148000	122000	101000	75500
3	65200	77600	75300	63300	54700	78800	83400	100000	152000	122000	98200	96900
4	66800	81500	62300	63600	50900	76700	84800	92400	153000	119000	103000	117000
5	62200	82500	49700	60900	49300	75800	88200	95300	147000	118000	105000	122000
6	59300	78400	52700	62500	66400	73100	86700	103000	140000	122000	105000	136000
7	64100	77500	53300	60500	64500	72300	88700	103000	138000	126000	99100	137000
8	57900	82400	46800	66300	65900	72700	87300	94100	134000	128000	95500	153000
9	52900	83200	46700	74800	66900	76500	83900	91200	135000	129000	87500	145000
10	54800	82000	46000	76600	67800	74700	71000	93200	137000	128000	97400	131000
11	57900	83200	54900	74000	65800	76800	65800	94100	133000	126000	105000	116000
12	62700	83100	61300	75700	64000	70000	64100	93700	131000	131000	105000	118000
13	61200	84000	61600	76400	65900	69900	64700	101000	133000	137000	107000	116000
14	60000	83000	61300	74400	64700	68200	64800	117000	131000	134000	116000	105000
15	59800	75700	53200	70700	66800	71100	63500	131000	126000	125000	95300	104000
16	48400	76100	56400	61400	67200	70800	63000	135000	125000	121000	85800	82200
17	51000	73600	59200	61800	67200	70400	63000	139000	121000	121000	96200	70900
18	52200	71900	57100	63700	67900	71100	63200	144000	120000	132000	96800	80000
19	53400	77900	56600	63400	68900	64400	65400	147000	118000	142000	87400	89500
20	59400	76700	55600	65100	79500	55700	84500	150000	112000	139000	89500	90500
21	66700	76900	52100	61000	76200	59700	86100	154000	114000	134000	90400	92300
22	74100	82300	53200	68700	78200	54900	84300	159000	114000	135000	93400	79100
23	76300	85800	51000	52900	74100	57000	82400	157000	111000	130000	79600	80100
24	71500	83400	48400	52000	76500	62800	83500	156000	112000	127000	69100	81400
25	71500	82800	48600	49900	77800	69000	87700	154000	114000	107000	67700	79700
26	71800	77100	51200	50800	75100	69700	90300	153000	114000	102000	67600	81400
27	68800	76100	51200	51700	77200	68800	92400	151000	119000	107000	76600	85400
28	64100	76100	51500	55200	77700	67000	97100	146000	125000	116000	79800	87800
29	69400	69900	51200	59400	---	66400	100000	143000	128000	119000	79100	106000
30	67600	69300	49100	65900	---	81700	98500	143000	129000	113000	74600	108000
31	71400	---	50500	62000	---	83500	---	145000	---	107000	69400	---
TOTAL	1955000	2362800	1708200	1949800	1897300	2194800	2408400	3895000	3860000	3845000	2824000	3036500
MEAN	63060	78760	55100	62900	67760	70800	80280	125600	128700	124000	91100	101200
MAX	76300	85800	75300	76600	79500	83500	100000	159000	153000	142000	116000	153000
MIN	48400	69300	46000	49900	49300	54900	63000	91200	111000	102000	67600	69800
AC-FT	3878000	4687000	3388000	3867000	3763000	4353000	4777000	7726000	7656000	7627000	5601000	6023000

CAL YR 1977 TOTAL 28503400 MEAN 78090 MAX 127000 MIN 21500 AC-FT 56540000
WTR YR 1978 TOTAL 31936800 MEAN 87500 MAX 159000 MIN 46000 AC-FT 63350000

12399900 BIG SHEEP CREEK NEAR ROSSLAND, BRITISH COLUMBIA

LOCATION.--Lat 49°01'00", long 117°56'40", just upstream from bridge on Rossland-Cascade highway, approximately 8 mi (12.9 km) southwest of Rossland.

DRAINAGE AREA.--134 mi^2 (347 km^2).

PERIOD OF RECORD.--October 1960 to current year in reports of Geological Survey. August 1929 to September 1930 and April 1949 to September 1960 in reports of Department of Northern Affairs and National Resources, Canada.

REVISED RECORDS.--WRD Wash. 1974: Drainage area.

GAGE.--Water-stage recorder. Prior to April 1949, nonrecording gage near present site.

COOPERATION.--Records furnished by Department of the Environment, Canada.

AVERAGE DISCHARGE.--30 years (water years 1930, 1950-78), 198 ft^3/s (5.607 m^3/s), 143,500 acre-ft/yr (177 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,700 ft^3/s (76.5 m^3/s) May 12, 1954, gage height, 6.75 ft (2.057 m); minimum, 2.3 ft^3/s (0.065 m^3/s) Nov. 7, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,530 ft^3/s (43.3 m^3/s) Apr. 29, gage height, 5.09 ft (1.551 m); minimum daily, 19 ft^3/s (0.54 m^3/s) Oct. 1-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	26	27	28	32	26	700	1230	678	243	48	52
2	19	30	28	27	32	27	631	1240	734	224	47	52
3	19	27	26	27	32	27	569	1230	837	209	47	50
4	19	25	25	27	31	26	529	1060	962	200	43	49
5	19	24	25	27	32	26	550	882	1020	189	41	48
6	19	24	25	27	30	26	508	754	1080	180	39	46
7	20	26	25	28	26	27	488	711	870	181	37	46
8	20	24	26	28	26	44	464	729	782	182	36	53
9	20	24	26	29	26	46	440	805	755	171	34	59
10	20	24	26	28	26	46	454	994	748	155	33	65
11	20	24	27	28	26	49	483	978	626	156	32	70
12	20	24	27	28	25	52	497	887	536	142	32	71
13	21	25	28	28	25	53	482	820	519	131	38	70
14	20	27	33	27	25	54	456	880	569	121	36	69
15	20	27	36	27	25	54	428	1170	512	115	38	67
16	20	26	39	28	25	57	418	1310	487	111	45	64
17	20	25	34	27	25	59	418	1200	458	122	44	65
18	20	26	33	26	25	60	416	1120	441	115	44	62
19	20	24	32	26	25	64	411	1130	422	107	42	61
20	20	25	30	26	25	69	503	1230	386	99	42	60
21	20	24	30	26	26	84	584	1360	370	92	41	60
22	20	24	29	26	26	112	560	1410	360	85	43	60
23	20	26	29	33	28	184	541	1150	341	80	47	66
24	20	26	28	33	29	421	519	938	340	75	47	70
25	20	28	27	33	29	505	502	830	349	71	55	69
26	20	27	28	33	28	516	560	728	319	67	62	67
27	20	26	28	33	27	534	849	659	292	69	63	64
28	20	26	28	33	27	536	1250	739	269	66	60	60
29	26	28	28	32	---	506	1500	779	244	64	56	73
30	29	26	28	32	---	664	1390	709	239	60	51	73
31	27	---	28	33	---	748	---	661	---	54	49	---
TOTAL	637	768	889	894	772	5774	18100	30323	16465	3936	1372	1849
MEAN	20.5	25.6	28.7	28.8	27.6	186	603	978	549	127	44.3	61.6
MAX	29	30	39	33	38	740	1500	1410	1020	243	63	73
MIN	19	24	25	26	25	26	411	659	239	54	32	46
AC-FT	1260	1520	1760	1770	1530	11450	35900	60150	32660	7810	2720	3670

CAL YR 1977 TOTAL 32990 MEAN 90.4 MAX 900 MIN 16 AC-FT 65450
WTR YR 1978 TOTAL 81779 MEAN 224 MAX 1500 MIN 19 AC-FT 162200

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

12400520 COLUMBIA RIVER AT NORTHPORT, WA
(National stream-quality accounting network station)

LOCATION.--Lat 48°55'21", long 117°46'32", in SW¼SW¼ sec.33, T.40 N., R.40 E., Stevens County, Hydrologic Unit 17020001, at State Highway 25 bridge at Northport, 9.9 mi (15.9 km) downstream from gaging station at international boundary, and at mile 735.1 (1,182.8 km).

DRAINAGE AREA.--60,200 mi² (155,900 km²), approximately.

PERIOD OF RECORD.--Water years 1910-11, 1952 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1951 to September 1975, April 1976 to current year.
pH: November 1951 to September 1969.
WATER TEMPERATURES: November 1951 to current year.
SUSPENDED SEDIMENT DISCHARGE: February 1910 to January 1911.

INSTRUMENTATION.--Temperature recorder since October 1974; specific conductance recorder since April 1976.

REMARKS.--Prior to November 1951 published as "at Northport". November 1951 to September 1957 published as 12399500 "at international boundary", October 1957 to September 1963 as "at Northport. October 1963 to September 1973 as "at international boundary."

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 285 micromhos Apr. 2, 1972; minimum, 96 micromhos Aug. 7, 1976, Sept. 5, 1978.
WATER TEMPERTURES: Maximum, 21.0°C May 14, 19, 1959; minimum, 0.0°C on several days during January in 1960, 1962 and 1963.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 180 micromhos Dec. 5, 9; minimum recorded, 96 micromhos Sept. 5.
WATER TEMPERATURES: Maximum, 20°C Aug. 5-10; minimum, 1.5°C Dec. 31, Jan. 1-3, 5-7.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT . 1977												
07...	0815	71000	145	7.6	12.4	1	--	10.1	K150	65	77	15
NOV												
03...	1415	74000	145	7.4	9.0	1	--	11.3	1	3	76	12
DEC												
02...	1100	73500	165	7.4	4.6	1	--	11.0	1	5	76	13
JAN . 1978												
04...	0945	59200	156	7.8	2.2	1	--	14.5	5	3	82	22
FEB												
09...	1045	59100	153	7.4	2.2	1	--	13.4	2	6	80	15
MAR												
08...	1145	65800	145	7.6	2.5	1	--	13.3	17	38	78	16
APR												
04...	1300	76200	148	8.2	5.0	2	--	12.8	22	32	80	9
MAY												
03...	1530	101000	131	7.8	7.6	2	--	13.3	45	22	68	10
30...	1200	143000	128	8.1	9.4	--	1.1	12.5	8	39	67	9
JUN												
28...	1300	125000	128	7.9	15.3	--	1.7	11.6	10	5	65	8
JUL												
27...	1200	110000	120	7.6	17.6	--	.70	10.2	--	51	67	14
SEP												
20...	1330	89000	113	7.6	14.8	--	1.0	10.4	2	9	59	11

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT . 1977												
07...	23	4.8	1.4	4	.1	.8	76	0	62	3.1	13	1.5
NOV												
03...	22	5.0	1.9	5	.1	.7	78	0	64	5.0	9.7	1.1
DEC												
02...	22	5.1	1.5	4	.1	.7	77	0	63	4.9	9.8	1.0
JAN . 1978												
04...	24	5.3	1.4	4	.1	.7	73	0	60	1.9	19	.9
FEB												
09...	23	5.4	1.7	4	.1	.9	79	0	65	5.0	18	1.6
MAR												
08...	23	5.0	3.8	9	.2	.9	76	0	62	3.1	15	.8
APR												
04...	23	5.5	2.6	7	.1	.8	87	0	71	.9	9.4	1.1
MAY												
03...	20	4.3	2.0	6	.1	.8	70	0	57	1.8	14	1.0
30...	20	4.1	2.0	6	.1	1.0	--	--	58	--	7.9	1.5
JUN												
28...	19	4.3	2.0	6	.1	.8	--	--	57	--	9.1	.9
JUL												
27...	20	4.0	1.6	5	.1	.7	--	--	53	--	11	.9
SEP												
20...	18	3.5	2.5	8	.1	1.7	--	--	48	--	19	1.9

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

WATER QUALITY DATA

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG, SUSP, TOTAL (MG/L AS N)
OCT , 1977												
07...	.2	3.7	81	86	.11	15500	3	.06	.04	--	--	--
NOV												
03...	.1	4.6	99	84	.13	19800	0	.05	.01	--	--	--
DEC												
02...	.1	4.4	86	83	.12	17100	2	.08	.02	--	--	--
JAN , 1978												
04...	.2	4.6	96	92	.13	15300	16	.68	.16	--	--	--
FEB												
09...	.2	4.8	88	95	.12	14000	11	.10	.06	.12	.18	.00
MAR												
08...	.2	4.2	73	90	.10	13000	5	.09	.05	.00	.05	.04
APR												
04...	.1	7.9	88	93	.12	18100	2	.02	.03	.14	.17	.02
MAY												
03...	.1	6.5	79	83	.11	21500	4	.06	.03	.30	.33	.03
30...	.1	5.8	83	77	.11	32000	10	.05	.00	--	--	--
JUN												
28...	.1	5.8	75	76	.10	25300	24	.02	.00	.27	.27	.11
JUL												
27...	.2	4.6	73	75	.10	21700	6	.05	.01	.27	.28	.10
SEP												
20...	.1	4.5	71	80	.10	17100	2	.06	.02	.56	.58	.37

DATE	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1977											
07...	.05	--	--	.06	.04	--	--	--	3	575	95
NOV											
03...	.16	--	--	.02	.02	6.7	--	--	3	599	73
DEC											
02...	.11	--	--	.00	.00	1.3	--	--	6	1190	95
JAN , 1978											
04...	.26	--	--	.07	.06	--	3.5	--	2	320	82
FEB											
09...	.20	.28	1.2	.05	.07	4.6	--	--	11	1760	19
MAR											
08...	.01	.14	.62	.09	.08	1.9	--	--	1	178	88
APR											
04...	.15	.19	.84	.04	.00	--	1.7	.6	6	1230	53
MAY											
03...	.30	.39	1.7	.02	.00	1.7	--	--	11	3000	53
30...	.10	--	--	.04	.02	2.0	--	--	21	8110	28
JUN											
28...	.16	.29	1.3	.01	.01	2.3	--	--	6	2030	79
JUL											
27...	.18	.33	1.5	.02	.01	--	3.7	.4	4	1190	59
SEP											
20...	.21	.64	2.8	.13	.13	1.3	--	--	3	721	64

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)
OCT , 1977										
07...	0815	0	0	0	200	100	100	<10	9	1
JAN , 1978										
04...	0945	1	0	1	0	0	0	1	0	1
APR										
04...	1300	1	0	1	100	100	0	1	0	1
JUL										
27...	1200	1	0	1	200	0	200	--	--	--

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

WATER QUALITY DATA

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT . 1977										
07...	20	20	0	<50	50	0	<10	8	2	20
JAN . 1978										
04...	10	0	10	8	0	0	10	5	5	60
APR										
04...	10	10	0	0	0	0	4	4	0	220
JUL										
27...	0	0	0	0	0	0	31	19	12	50

DATE	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)
OCT . 1977										
07...	--	10	<100	96	4	30	10	20	.0	--
JAN . 1978										
04...	--	60	17	11	6	10	0	10	.2	.2
APR										
04...	--	40	10	7	3	80	0	80	.0	.0
JUL										
27...	30	20	--	--	--	10	0	10	.1	.1

DATE	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
OCT . 1977										
07...	.0	0	0	0	<10	10	0	100	0	110
JAN . 1978										
04...	.0	0	0	0	1	1	0	160	0	160
APR										
04...	.0	0	0	0	1	1	0	30	20	10
JUL										
27...	.0	0	0	0	0	0	0	60	0	60

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JUNE 1978

DATE	NOV 3,77		MAR 8,78		MAY 3,78		MAY 30,78		JUN 28,78	
TIME	1415		1145		1530		1200		1300	
TOTAL CELLS/ML	1300		2300		1000		3700		4300	
DIVERSITY: DIVISION	0.6		0.1		1.2		1.6		1.5	
.CLASS	0.6		0.1		1.2		1.6		1.6	
..ORDER	1.2		0.2		1.9		2.3		2.0	
...FAMILY	1.4		0.2		2.7		2.8		2.6	
....GENUS	1.5		0.2		2.8		2.9		2.9	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
BACILLARIOPHYTA (KARSTEN)										
.BACILLARIOPHYCEAE										
..FRAGILARIALES										
...FRAGILARIACEAE										
....OPEPHORA	--	-	--	-	--	-	*	0	--	-
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...MICRACTINIACEAE										
....GOLENKINIA	--	-	--	-	43	4	--	-	--	-
....MICRACTINIUM	--	-	--	-	--	-	--	-	520	12
...OOCYSTACEAE										
....ANKISTRODESMUS	24	2	22	1	140	14	630#	17	*	0
....KIRCHNERIELLA	*	0	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	--	-	--	-	--	-	110	3	--	-
..TETRASPORALES										
...PALMELLACEAE										
....GLOEOCYSTIS	--	-	--	-	--	-	--	-	330	8
..ZYGNEMATALES										
...DESMIDIACEAE										
....COSMARIUM	--	-	--	-	--	-	--	-	*	0
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	8	1	2200#	97	340#	34	770#	21	170	4
....MELOSIRA	--	-	--	-	*	0	29	1	72	2
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	14	1	*	0	--	-
....COCCONEIS	4	1	--	-	--	-	*	0	*	0
...CYMBELLACEAE										
....CYMBELLA	--	-	--	-	14	1	--	-	--	-
....EPITHEMIA	--	-	--	-	--	-	*	0	*	0
...DIATOMACEAE										
....DIATOMA	*	0	--	-	14	1	*	0	--	-
...FRAGILARIACEAE										
....ASTERIONELLA	55	4	--	-	140	14	210	6	310	7
....FRAGILARIA	20	2	--	-	--	-	--	-	570	13
....HANNAEA	--	-	--	-	*	0	--	-	--	-
....SYNEDRA	24	2	45	2	14	1	57	2	*	0
...GOMPHONEMATACEAE										
....GOMPHONEMA	*	0	--	-	--	-	29	1	29	1
...NAVICULACEAE										
....CALONEIS	--	-	--	-	*	0	--	-	--	-
....NAVICULA	12	1	--	-	14	1	29	1	--	-
...NITZSCHIACEAE										
....NITZSCHIA	*	0	--	-	170#	16	190	5	470	11
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....DINOBRYON	--	-	--	-	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	150	11	--	-	100	10	910#	25	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	12	1	--	-	--	-	--	-	--	-
....APHANIZOMENON	--	-	--	-	--	-	--	-	210	5
...OSCILLATORIACEAE										
....OSCILLATORIA	970#	75	--	-	--	-	630#	17	1500#	35
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...PERIDINIACEAE										
....PERIDINIUM	--	-	--	-	14	1	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%
Additional phytoplankton and periphyton data available from District office in Tacoma.

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
SAMPLING DEPTH 10.00(FT.),

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	140	134	137	143	136	140	166	162	165	162	151	155
2	140	137	139	142	139	141	166	163	164	156	148	152
3	144	135	138	146	142	144	170	163	165	156	150	154
4	145	139	143	147	144	146	174	169	172	158	152	155
5	145	140	143	148	143	145	180	174	177	159	155	157
6	146	141	143	146	142	144	179	173	176	160	153	157
7	146	142	145	146	144	145	178	172	176	163	156	159
8	147	138	143	151	145	149	179	176	178	162	155	160
9	139	130	135	155	152	153	180	173	178	157	153	156
10	140	132	137	155	151	153	176	173	175	157	150	154
11	141	132	138	156	149	153	174	167	170	160	153	158
12	147	140	144	152	150	151	167	162	165	160	158	159
13	151	145	148	153	150	152	165	158	161	161	153	158
14	152	148	150	153	150	151	166	159	164	158	154	156
15	152	142	147	160	156	159	172	166	170	159	153	157
16	143	133	137	162	157	159	173	169	171	164	158	161
17	143	136	140	166	163	164	173	168	171	163	154	159
18	149	143	146	167	164	166	172	169	170	165	155	159
19	150	143	147	166	155	160	171	169	169	163	152	160
20	151	148	150	158	151	154	170	163	167	164	156	161
21	150	147	149	155	153	155	169	162	167	163	157	160
22	147	137	140	163	157	162	168	168	168	162	157	160
23	140	139	140	165	162	163	170	165	167	166	159	163
24	140	133	137	164	161	162	172	166	170	164	154	159
25	148	140	146	163	159	161	171	162	168	165	154	161
26	149	145	147	164	157	160	162	157	158	165	159	161
27	151	147	149	164	154	159	164	155	158	165	154	160
28	150	145	147	165	163	164	166	163	164	163	153	158
29	149	141	145	166	159	162	165	157	162	162	155	159
30	144	139	141	167	161	165	166	158	163	161	155	157
31	142	138	141	---	---	---	164	159	162	159	151	155
MONTH	152	130	143	167	136	155	180	155	168	166	148	158

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	160	154	154	---	---	---	148	146	147	134	132	133
2	161	156	159	---	---	---	148	146	147	133	128	131
3	160	155	156	---	---	---	149	146	148	134	128	131
4	162	153	157	---	---	---	149	143	146	135	129	133
5	162	155	158	---	---	---	151	146	150	136	130	133
6	156	153	154	---	---	---	149	142	147	137	135	136
7	154	148	152	---	---	---	151	145	149	139	132	135
8	157	150	153	---	---	---	147	143	145	142	135	139
9	156	153	154	---	---	---	155	144	148	142	136	138
10	---	---	---	---	---	---	157	155	156	139	135	137
11	---	---	---	---	---	---	160	150	155	138	132	136
12	---	---	---	---	---	---	161	158	158	141	132	137
13	---	---	---	---	---	---	160	159	159	142	139	140
14	---	---	---	---	---	---	159	150	156	138	134	136
15	---	---	---	---	---	---	160	149	155	134	129	131
16	---	---	---	161	159	160	161	159	160	131	126	128
17	---	---	---	163	160	161	160	156	158	129	126	127
18	---	---	---	158	151	152	160	151	157	131	128	130
19	---	---	---	162	148	152	160	151	156	130	126	129
20	---	---	---	167	157	164	157	151	153	129	129	129
21	---	---	---	164	154	159	151	144	149	130	128	129
22	---	---	---	166	161	164	149	142	146	128	122	125
23	---	---	---	165	157	163	148	142	145	127	123	125
24	---	---	---	164	152	158	146	143	144	128	125	127
25	---	---	---	159	150	153	144	143	144	129	127	128
26	---	---	---	159	158	158	143	141	142	127	124	125
27	---	---	---	158	156	157	142	139	140	132	129	131
28	---	---	---	157	145	152	139	133	136	131	129	130
29	---	---	---	152	144	149	136	129	132	132	130	131
30	---	---	---	150	144	147	135	133	134	132	127	130
31	---	---	---	147	141	145	---	---	---	132	130	131
MONTH	162	148	155	167	141	156	161	129	149	142	122	132

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
SAMPLING DEPTH 10.00(FT.).

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	132	130	131	128	126	127	115	112	114	119	113	116
2	133	129	132	129	126	128	112	111	112	117	110	114
3	132	129	131	129	127	128	115	112	113	116	108	112
4	129	126	127	128	124	127	112	110	111	111	101	106
5	125	122	123	129	125	128	113	110	112	101	96	99
6	124	119	122	130	126	129	110	107	109	103	101	102
7	127	121	125	129	125	126	112	108	110	105	100	102
8	127	124	126	131	128	130	111	108	110	103	100	101
9	126	120	125	130	124	127	113	108	111	110	102	105
10	126	118	122	126	123	124	112	108	110	111	106	109
11	127	124	126	128	126	127	110	107	108	111	107	110
12	129	124	128	126	123	126	109	106	108	110	104	106
13	130	126	128	126	124	125	108	103	106	112	105	108
14	129	127	129	125	124	124	106	103	105	113	110	112
15	131	127	129	124	119	122	109	105	108	114	111	112
16	132	128	131	120	119	120	110	107	109	121	114	117
17	133	132	132	121	118	119	108	104	106	123	118	121
18	133	132	132	121	119	120	106	103	105	121	116	119
19	132	126	130	121	119	120	108	106	107	119	107	112
20	132	126	130	121	118	119	106	104	105	117	107	113
21	131	128	130	122	120	121	107	103	105	121	116	118
22	128	127	127	121	117	119	110	107	108	125	119	122
23	127	122	126	118	117	117	113	111	112	125	121	124
24	127	121	124	121	117	118	112	109	111	124	123	124
25	129	125	128	126	122	123	112	107	110	126	119	124
26	129	123	126	124	122	123	113	107	109	125	118	121
27	129	124	127	122	118	120	110	105	107	124	119	123
28	129	124	127	120	113	118	111	106	109	125	119	122
29	129	126	128	117	111	114	111	109	110	122	117	120
30	129	128	128	112	111	112	111	107	109	122	117	121
31	---	---	---	114	112	113	115	111	113	---	---	---
MONTH	133	118	128	131	111	122	115	103	109	126	96	114
YEAR	180	96	139									

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	13.5	13.0	13.5	9.5	9.5	9.5	5.0	4.0	4.5	2.0	1.5	2.0
2	13.5	13.0	13.5	9.5	9.5	9.5	5.0	4.5	4.5	2.0	1.5	2.0
3	13.5	13.0	13.0	9.5	9.0	9.0	5.0	4.0	4.5	2.0	1.5	2.0
4	13.0	12.5	12.5	9.0	8.5	9.0	4.5	4.5	4.5	2.0	2.0	2.0
5	12.5	12.5	12.5	9.0	9.0	9.0	4.5	4.0	4.0	2.0	1.5	2.0
6	12.5	12.0	12.5	9.0	8.5	8.5	4.5	4.0	4.0	2.5	1.5	2.0
7	12.5	12.5	12.5	8.5	8.5	8.5	4.5	4.0	4.0	2.5	1.5	2.0
8	12.5	12.0	12.0	8.5	8.0	8.5	4.0	3.5	3.5	2.0	2.0	2.0
9	12.0	12.0	12.0	8.0	8.0	8.0	3.5	3.0	3.5	2.5	2.0	2.0
10	12.0	11.5	12.0	8.0	8.0	8.0	3.5	3.0	3.5	2.5	2.0	2.0
11	12.0	11.5	11.5	8.0	7.5	8.0	3.5	3.0	3.5	2.5	2.0	2.5
12	11.5	11.5	11.5	7.5	7.5	7.5	4.0	3.5	3.5	2.5	2.0	2.5
13	11.5	11.5	11.5	7.5	7.5	7.5	4.0	3.5	3.5	2.5	2.0	2.5
14	11.5	11.5	11.5	7.5	7.5	7.5	3.5	3.5	3.5	2.5	2.0	2.5
15	11.5	11.0	11.0	7.5	7.0	7.5	3.5	3.5	3.5	2.5	2.0	2.0
16	11.5	11.0	11.5	7.0	7.0	7.0	3.5	3.5	3.5	---	---	---
17	11.5	11.0	11.0	7.0	7.0	7.0	3.5	3.5	3.5	---	---	---
18	11.5	11.0	11.0	7.0	7.0	7.0	4.0	3.5	3.5	---	---	---
19	11.5	11.0	11.5	6.5	6.5	6.5	4.0	3.5	3.5	---	---	---
20	11.0	11.0	11.0	6.5	6.0	6.5	3.5	3.5	3.5	---	---	---
21	11.0	11.0	11.0	6.0	6.0	6.0	3.5	3.5	3.5	---	---	---
22	11.0	11.0	11.0	6.0	5.5	5.5	3.5	3.5	3.5	---	---	---
23	11.0	11.0	11.0	5.5	5.0	5.5	3.5	3.5	3.5	---	---	---
24	11.0	10.5	11.0	5.5	5.0	5.0	3.5	2.5	3.0	---	---	---
25	10.5	10.0	10.5	5.0	4.5	5.0	3.0	2.5	2.5	---	---	---
26	10.5	10.0	10.5	5.5	4.5	5.0	2.5	2.0	2.5	---	---	---
27	10.5	10.0	10.0	5.5	4.5	5.0	2.5	2.0	2.0	---	---	---
28	10.5	10.0	10.0	5.0	5.0	5.0	2.0	2.0	2.0	---	---	---
29	10.0	10.0	10.0	5.5	4.5	5.0	2.5	2.0	2.5	---	---	---
30	10.0	10.0	10.0	5.0	4.5	5.0	2.5	2.0	2.0	---	---	---
31	10.0	9.5	10.0	---	---	---	2.0	1.5	2.0	---	---	---
MONTH	13.5	9.5	11.5	9.5	4.5	7.0	5.0	1.5	3.5	2.5	1.5	2.0

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	3.0	2.5	2.5	5.5	5.0	5.5	7.5	7.5	7.5
2	---	---	---	3.0	2.5	2.5	5.0	5.0	5.0	8.0	7.5	7.5
3	---	---	---	2.5	2.5	2.5	5.5	5.0	5.0	8.0	7.5	7.5
4	---	---	---	2.5	2.5	2.5	5.5	5.0	5.0	7.5	7.5	7.5
5	---	---	---	2.5	2.5	2.5	5.5	5.0	5.0	8.0	7.5	8.0
6	---	---	---	2.5	2.5	2.5	5.5	5.0	5.0	8.5	8.0	8.5
7	---	---	---	2.5	2.5	2.5	5.5	5.0	5.0	9.0	8.5	8.5
8	---	---	---	2.5	2.5	2.5	5.5	5.0	5.5	9.0	8.5	9.0
9	---	---	---	3.0	2.5	2.5	5.5	5.0	5.5	9.0	8.5	9.0
10	2.5	2.0	2.5	3.0	2.5	3.0	6.0	5.5	5.5	9.5	9.0	9.0
11	2.5	2.5	2.5	3.0	3.0	3.0	6.5	6.0	6.0	9.5	9.0	9.5
12	2.5	2.5	2.5	3.0	3.0	3.0	6.0	6.0	6.0	9.5	9.0	9.5
13	2.5	2.0	2.5	3.0	3.0	3.0	6.5	6.0	6.5	9.5	9.0	9.5
14	2.5	2.0	2.0	3.0	3.0	3.0	6.5	6.5	6.5	9.0	8.5	9.0
15	2.5	2.0	2.0	3.0	2.5	3.0	6.5	6.5	6.5	8.5	8.0	8.5
16	2.0	2.0	2.0	3.5	3.0	3.0	6.5	6.5	6.5	8.0	7.5	8.0
17	2.5	2.0	2.0	3.5	3.0	3.5	6.5	6.5	6.5	8.5	7.5	8.0
18	2.5	2.0	2.0	3.5	3.5	3.5	6.5	6.5	6.5	9.0	8.0	8.5
19	2.5	2.0	2.5	4.0	3.5	3.5	7.0	6.5	6.5	9.5	8.5	9.0
20	2.5	2.0	2.0	4.0	3.5	4.0	7.0	6.5	6.5	9.5	9.0	9.5
21	2.5	2.0	2.5	4.5	4.0	4.0	7.0	6.5	6.5	10.0	9.5	9.5
22	2.5	2.5	2.5	4.5	4.0	4.5	7.0	6.5	6.5	10.0	9.5	9.5
23	2.5	2.5	2.5	4.5	4.5	4.5	7.0	6.5	6.5	9.5	9.0	9.5
24	2.5	2.5	2.5	5.0	4.5	4.5	7.0	6.5	6.5	9.5	9.5	9.5
25	3.0	2.5	2.5	5.0	4.5	5.0	7.0	6.5	7.0	9.5	9.0	9.5
26	3.0	2.5	2.5	5.0	5.0	5.0	7.5	7.0	7.0	9.5	9.0	9.5
27	3.0	2.5	3.0	5.0	5.0	5.0	7.5	7.0	7.0	9.0	9.0	9.0
28	3.0	2.5	3.0	5.0	5.0	5.0	7.5	7.0	7.0	9.5	9.0	9.5
29	---	---	---	5.0	5.0	5.0	7.5	7.0	7.0	9.5	9.0	9.5
30	---	---	---	5.5	5.0	5.0	7.5	7.0	7.5	9.5	9.0	9.5
31	---	---	---	5.5	5.0	5.5	---	---	---	10.0	9.5	10.0
MONTH	3.0	2.0	2.5	5.5	2.5	3.5	7.5	5.0	6.0	10.0	7.5	9.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10.5	10.0	10.0	16.0	15.5	16.0	19.5	18.5	19.0	17.0	17.0	17.0
2	10.5	10.0	10.5	16.5	16.0	16.0	19.5	19.0	19.5	17.0	16.0	16.0
3	11.0	10.5	11.0	16.5	16.0	16.0	19.5	19.0	19.5	16.0	14.5	15.0
4	11.5	11.0	11.5	16.0	16.0	16.0	19.5	18.5	19.0	15.5	15.0	15.5
5	12.0	11.5	11.5	16.0	16.0	16.0	20.0	19.0	19.5	16.0	15.0	15.5
6	12.0	11.5	12.0	16.0	16.0	16.0	20.0	19.5	20.0	16.0	16.0	16.0
7	12.5	12.0	12.0	16.0	15.5	15.5	20.0	19.5	20.0	16.0	15.5	16.0
8	13.0	12.5	12.5	16.0	15.5	16.0	20.0	19.5	20.0	16.0	15.5	16.0
9	13.0	12.5	13.0	16.5	16.0	16.0	20.0	19.5	20.0	15.5	15.0	15.5
10	12.5	12.5	12.5	16.0	16.0	16.0	20.0	19.0	19.5	15.5	14.5	15.0
11	13.0	12.5	12.5	17.0	16.0	16.5	19.5	18.5	19.0	15.5	15.0	15.0
12	13.0	12.5	12.5	17.0	16.5	17.0	19.5	19.0	19.5	15.5	15.5	15.5
13	12.5	12.5	12.5	17.5	17.0	17.0	19.5	18.5	19.0	15.5	15.0	15.5
14	12.5	12.0	12.5	17.0	17.0	17.0	19.5	18.5	19.0	15.5	15.0	15.5
15	12.5	12.0	12.0	17.0	16.5	16.5	18.5	17.5	18.0	15.5	15.0	15.0
16	12.0	12.0	12.0	16.5	16.5	16.5	17.5	16.5	17.0	15.0	14.5	15.0
17	12.5	12.0	12.5	17.0	16.5	16.5	16.5	15.5	16.0	15.0	14.5	15.0
18	12.5	12.5	12.5	17.5	16.5	17.0	18.0	16.5	17.5	15.0	14.5	15.0
19	12.5	12.0	12.5	17.5	17.0	17.5	18.0	17.0	17.5	15.0	15.0	15.0
20	13.5	12.5	12.5	18.0	17.5	17.5	17.0	16.5	16.5	15.0	14.5	15.0
21	14.0	13.0	13.5	17.5	17.5	17.5	17.0	16.5	16.5	15.0	14.0	14.5
22	14.0	13.5	14.0	18.5	17.5	18.0	17.5	17.0	17.0	14.0	14.0	14.0
23	14.5	14.0	14.0	18.5	18.0	18.0	17.5	17.0	17.5	14.0	14.0	14.0
24	14.5	14.0	14.0	18.0	17.5	17.5	17.0	16.5	16.5	14.0	13.5	13.5
25	14.5	14.0	14.5	17.5	17.0	17.5	16.5	16.0	16.0	13.5	13.0	13.5
26	14.5	14.5	14.5	17.5	17.5	17.5	16.0	15.0	15.5	14.0	14.0	14.0
27	15.0	14.5	15.0	18.0	17.0	17.5	16.0	15.0	15.5	14.0	14.0	14.0
28	15.5	15.0	15.0	18.0	17.5	18.0	16.5	15.5	16.0	14.0	14.0	14.0
29	16.0	15.5	16.0	19.0	18.0	18.5	17.0	16.0	16.5	14.0	14.0	14.0
30	16.0	15.5	15.5	19.0	19.0	19.0	17.0	16.5	16.5	14.0	13.5	14.0
31	---	---	---	19.0	18.5	19.0	17.0	17.0	17.0	---	---	---
MONTH	16.0	10.0	13.0	19.0	15.5	17.0	20.0	15.0	18.0	17.0	13.0	15.0
YEAR	20.0	1.5	9.5									

12401500 KETTLE RIVER NEAR FERRY, WA
(International gaging station)

LOCATION.--Lat 48°58'53", long 118°45'55", in SE¼NW¼ sec.10, T.40 N., R.32 E., Ferry County, Hydrologic Unit 17020002, on right bank 0.5 mi (0.8 km) upstream from Catherine Creek, 1.3 mi (2.1 km) south of international boundary and Ferry, 3.2 mi (5.1 km) upstream from Toroda Creek, and at mile 84.02 (135.2 km).

DRAINAGE AREA.--2,220 mi² (5,750 km²), approximately.

PERIOD OF RECORD.--August 1928 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,836.8 ft (559.86 m) National Geodetic Vertical Datum of 1929, international joint adjustment of 1947. Prior to Nov. 23, 1928, nonrecording gage at same site and datum.

REMARKS.--Records excellent. Several small diversions above station for irrigation. No regulation.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--50 years, 1,502 ft³/s (42.54 m³/s), 1,088,000 acre-ft/yr (1,340 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft³/s (600 m³/s) May 29, 1948, gage height, 21.15 ft (6.447 m); minimum, 14 ft³/s (0.40 m³/s), discharge measurement, Jan. 23, 1930, but may have been less during period of ice effect Jan. 18-23, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,400 ft³/s (323 m³/s) June 6, gage height, 17.34 ft (5.285 m); minimum, 54 ft³/s (1.53 m³/s) Nov. 20, gage height, 9.05 ft (2.758 m), but may have been less during period of ice effect Nov. 21-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	190	177	146	98	107	150	2060	7750	5830	2910	483	490
2	188	184	146	96	114	125	1990	7770	6060	2620	446	785
3	185	180	147	98	119	110	1870	8348	7540	2440	414	924
4	180	177	145	105	125	100	1780	7410	9140	2330	384	781
5	175	178	140	108	134	125	1850	6038	10300	2250	360	735
6	170	174	143	110	146	153	1830	5190	10900	2110	338	897
7	166	176	141	113	157	159	1760	4720	9750	2040	319	946
8	164	179	124	117	160	161	1760	4910	8700	1970	300	1080
9	163	176	120	122	175	163	1790	5520	8080	1900	284	1350
10	163	166	125	125	173	164	1840	6550	7270	2640	267	1460
11	166	160	137	125	155	172	2110	6650	5860	2800	253	1540
12	166	171	149	125	145	183	2330	6290	5140	2440	250	1500
13	162	182	168	122	130	189	2270	5570	5030	2010	248	1300
14	162	186	175	122	132	188	2250	5680	6330	1740	268	1190
15	164	186	185	122	133	182	2210	6630	5410	1540	314	1130
16	166	182	194	124	135	177	2210	6950	4770	1420	363	1100
17	164	175	187	131	135	172	2410	6730	4380	1410	392	1250
18	163	138	181	133	153	177	2460	6510	4360	1400	396	1250
19	163	109	172	138	152	188	2530	6870	4240	1290	388	1170
20	162	75	152	141	153	202	3080	7910	3820	1170	389	1140
21	160	73	138	145	158	220	3730	9360	3870	1050	459	1110
22	159	79	126	143	162	245	3710	10500	4080	951	479	1440
23	156	87	123	141	169	285	3520	9000	3970	863	480	1830
24	153	95	108	136	160	356	3380	7090	3980	784	480	1910
25	155	102	84	137	167	471	3360	6120	3710	718	530	1810
26	156	113	112	136	162	620	3820	6460	3400	665	572	1660
27	156	120	123	138	162	731	5480	4940	3180	650	650	1530
28	165	130	115	136	161	876	7940	4920	3080	651	596	1470
29	173	143	112	128	---	1090	8780	5010	3050	616	536	1390
30	173	150	105	110	---	1530	8370	4680	3130	571	487	1280
31	172	---	100	96	---	1950	---	4510	---	527	462	---
TOTAL	5160	4423	4307	3821	4142	11614	94480	202480	167480	48716	12587	37448
MEAN	166	147	139	123	148	375	3149	6532	5583	1571	406	1248
MAX	190	186	194	145	175	1950	8780	10500	10900	2910	650	1910
MIN	153	73	84	96	107	100	1760	4510	3050	527	248	490
AC-FT	10230	8770	8540	7580	8220	23040	187480	401600	332200	96630	24970	74280

CAL YR 1977 TOTAL 364662 MEAN 999 MAX 9430 MIN 73 AC-FT 723300
WTR YR 1978 TOTAL 596658 MEAN 1635 MAX 10900 MIN 73 AC-FT 1183000

12404500 KETTLE RIVER NEAR LAURIER, WA
(International gaging station)

LOCATION.--Lat 48°59'04", long 118°12'55", in SW¼NW¼ sec.11, T.40 N., R.36 E., Ferry County, Hydrologic Unit 17020002, on right bank 1,000 ft (305 m) downstream from Deep Creek, 1.1 mi (1.8 km) south of international boundary, 1.1 mi (1.8 km) southeast of Laurier, and at mile 29.71 (47.80 km).

DRAINAGE AREA.--3,800 mi^2 (9,800 km^2), approximately.

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 737: 1930-31. WSP 862: 1937. WSP 882: 1938.

GAGE.--Water-stage recorder. Datum of gage is 1,425.5 ft (434.49 m) National Geodetic Vertical Datum of 1929, international joint adjustment of 1947. Prior to Jan. 3, 1930, nonrecording gage at same site and datum.

REMARKS.--Records excellent except those for periods of ice effect, which are fair. Diversions for irrigation of about 720 acres (290 hm^2) in the United States (for 1946 from United States reports), and 2,090 acres (850 hm^2) in Canada from the Canada Year Book for 1940.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--49 years, 2,877 ft^3/s (81.48 m^3/s), 2,084,000 acre-ft/yr (2,570 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft^3/s (991 m^3/s) May 29, 1948, gage height, 17.25 ft (5.258 m); minimum, 88 ft^3/s (2.49 m^3/s) Dec. 1, 1936, gage height, 2.20 ft (0.671 m), but was probably less during winter of 1929-30.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May or June 1894 reached a stage of about 22 ft (6.7 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,800 ft^3/s (532 m^3/s) June 6, gage height, 12.53 ft (3.819 m); minimum, 148 ft^3/s (4.19 m^3/s) Nov. 20, gage height, 2.33 ft (0.710 m), but may have been less during period of ice effect Nov. 21-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	385	367	325	265	340	400	5350	14000	8750	5740	1120	964
2	378	372	320	255	350	391	5850	13700	10200	5060	1040	1130
3	371	366	320	265	360	368	4770	14400	12400	4750	987	1540
4	365	368	320	275	370	333	4480	13500	15000	4560	915	1570
5	361	359	315	290	375	332	4530	11600	17000	4380	866	1450
6	356	355	320	305	385	364	4590	10200	18200	4220	824	1470
7	355	352	320	320	390	393	4330	9360	17300	4130	782	1640
8	349	351	310	330	400	418	4240	9270	15200	3860	734	1770
9	346	357	300	335	410	432	4250	9940	14300	3800	698	2040
10	344	350	305	320	415	444	4280	11500	13500	4440	662	2460
11	341	345	315	300	390	458	4620	11700	11200	4790	620	2660
12	339	339	330	300	370	477	5120	11200	9610	4650	608	2740
13	341	342	345	305	356	498	5060	10400	9040	3970	656	2480
14	336	356	365	310	374	515	4910	10300	10700	3480	638	2270
15	335	362	390	320	375	514	4800	11900	10100	3150	668	2130
16	332	366	390	325	375	503	4690	12600	8670	2890	768	2040
17	334	363	375	330	371	501	4780	12200	7930	2820	838	2060
18	332	352	365	340	360	498	4870	11800	7760	2820	817	2130
19	336	285	355	350	367	503	4900	11800	7890	2630	803	2060
20	333	260	335	360	377	536	5690	13200	7160	2390	824	1980
21	329	235	315	370	374	573	7110	15200	7150	2210	845	1930
22	325	240	305	375	384	649	7170	17400	7600	2040	901	1960
23	323	250	300	370	405	799	6810	16600	7510	1870	929	2520
24	316	270	275	360	412	1220	6560	13200	7220	1730	936	2790
25	315	285	260	360	397	1940	6430	11500	7070	1600	992	2790
26	316	305	285	360	405	2290	6870	10300	6520	1480	1120	2670
27	319	315	295	355	405	2820	9070	9260	5990	1430	1200	2470
28	319	320	290	350	405	3010	12800	8990	5860	1390	1200	2480
29	333	325	285	345	---	3420	15200	9130	5930	1340	1120	2460
30	358	330	280	340	---	4230	14900	8770	5980	1270	1020	2300
31	358	---	270	335	---	5240	---	8250	---	1200	971	---
TOTAL	10572	9842	9880	10120	10697	35069	188230	363170	298740	96090	27108	62954
MEAN	341	328	319	326	382	1131	6274	11720	9958	3100	874	2098
MAX	385	372	390	375	415	5240	15200	17400	18200	5740	1200	2790
MIN	315	235	260	255	340	332	4240	8250	5860	1200	608	964
AC-FT	20970	19520	19600	20070	21220	69560	373400	720300	592600	190600	53770	124900

CAL YR 1977 TOTAL 643185 MEAN 1762 MAX 15500 MIN 203 AC-FT 1276000
WTR YR 1978 TOTAL 1122472 MEAN 3075 MAX 18200 MIN 235 AC-FT 2226000

12404900 KETTLE RIVER NEAR BARSTOW, WA

LOCATION.--Lat 48°47'05", long 118°07'30", in SW¼SW¼ sec.16, T.38 N., R.37 E., Ferry County, Hydrologic Unit 17020002, at county road bridge 0.1 mi (0.2 km) downstream from Toulou Creek, 1.1 mi (1.8 km) east of Barstow and at mile 10.9 (17.5 km).

DRAINAGE AREA.--4,044 mi^2 (10,474 km^2).

PERIOD OF RECORD.--Water years 1960-62, 1963-70 (partial-record station), 1972, 1975 to current year.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is fair.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by the Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
OCT , 1977							
25...	1400	340	--	6.8	8.5	--	3
NOV							
15...	1115	389	205	7.3	4.9	--	18
FEB , 1978							
07...	1145	E421	160	7.3	1.0	20	12
MAR							
07...	1130	422	145	7.6	3.8	5	3
APR							
11...	1010	4920	90	7.9	6.2	10	3
MAY							
09...	1240	10800	110	7.6	10.0	5	9
JUN							
06...	1130	19700	35	9.2	15.1	10	18
JUL							
11...	0945	5540	70	9.0	16.2	5	16
AUG							
08...	1300	786	115	7.8	24.4	20	21
SEP							
12...	1400	2970	69	7.2	15.7	5	10

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977						
25...	--	.04	.02	.02	.00	.00
NOV						
15...	--	--	.02	.01	.00	.00
FEB , 1978						
07...	14.0	.22	.02	.01	.00	.00
MAR						
07...	12.4	.05	.05	.01	.00	.00
APR						
11...	11.9	.01	.02	.04	.02	.06
MAY						
09...	10.3	.02	.04	.02	.00	.00
JUN						
06...	9.6	.16	.11	.05	.01	.03
JUL						
11...	9.7	.02	.02	.01	.00	.00
AUG						
08...	8.1	.14	.39	.03	.00	.00
SEP						
12...	9.1	.00	.04	.01	.01	.03

12406000 DEER LAKE NEAR LOON LAKE, WA

LOCATION.--Lat 48°06'28", long 117°36'06", in SW¼SW¼ sec.11, T.30 N., R.41 E., Stevens County, Hydrologic Unit 17020003, 0.2 mi (0.3 km) upstream from outlet at Stymans' Resort, and 3.4 mi (5.5 km) northeast of the town of Loon Lake.

DRAINAGE AREA.--18.2 mi^2 (47.1 km^2).

PERIOD OF RECORD.--November 1952 to November 1968 (fragmentary), December 1968 to September 1978 (discontinued). Chemical analyses October 1971 to September 1972.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,473.9 ft (754.04 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1953, nonrecording gage 150 ft (46 m) down lake at datum 4.00 ft (1.219 m) higher, and Oct. 1, 1953, to Nov. 13, 1968, nonrecording gage 300 ft (91 m) down lake at present datum.

REMARKS.--Intermediate stages of lake controlled by county road fill and two corrugated metal pipe culverts. Some pumping for domestic use.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 9.30 ft (2.835 m) Apr. 25, 26, 1956; minimum observed, 3.05 ft (0.930 m) Jan. 8, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 6.91 ft (2.106 m) May 27, 28; minimum, 3.70 ft (1.128 m) Oct. 27, 28.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.93	3.83	3.90	---	4.73	5.28	6.46	6.87	6.84	6.40	6.08	5.64
2	3.92	3.84	3.93	---	4.76	5.28	6.55	6.85	6.83	6.38	5.97	5.63
3	3.90	3.82	3.93	4.47	4.78	5.28	6.60	6.84	6.82	6.37	5.95	5.62
4	3.90	3.83	3.92	4.48	4.78	5.28	6.64	6.83	6.80	6.36	5.94	5.61
5	3.89	3.82	3.92	4.53	4.79	5.29	6.72	6.82	6.78	6.34	5.92	5.60
6	3.87	3.82	---	4.56	4.82	5.30	6.76	6.81	6.76	6.33	5.90	5.60
7	3.86	3.81	---	4.56	4.86	5.31	6.79	6.80	6.75	6.33	5.87	5.60
8	3.87	3.82	---	4.59	4.93	5.33	6.82	6.79	6.72	6.32	5.86	5.66
9	3.86	3.84	---	4.61	4.97	5.34	6.84	6.78	6.69	6.31	5.84	5.66
10	3.84	3.83	---	4.61	5.01	5.36	6.85	6.78	6.67	6.29	5.81	5.65
11	3.83	3.83	---	4.61	5.04	5.39	6.86	6.76	6.65	6.27	5.78	5.64
12	3.83	3.83	---	4.61	5.05	5.42	6.85	6.75	6.63	6.25	5.76	5.63
13	3.84	3.83	---	4.61	5.07	5.45	6.85	6.77	6.63	6.24	5.73	5.62
14	3.83	3.86	---	4.62	5.08	5.48	6.85	6.81	6.63	6.22	5.71	5.61
15	3.82	3.86	---	4.63	5.09	5.49	6.85	6.84	6.61	6.20	5.74	5.60
16	3.82	3.85	---	4.63	5.09	5.51	6.87	6.87	6.59	6.21	5.79	5.59
17	3.82	3.84	---	4.65	5.10	5.52	6.88	6.89	6.59	6.20	5.79	5.57
18	3.81	3.84	---	4.66	5.11	5.54	6.87	6.89	6.57	6.22	5.78	5.56
19	3.81	---	---	4.66	5.11	5.58	6.86	6.88	6.55	6.21	5.76	5.55
20	3.80	---	---	4.67	5.12	5.62	6.89	6.88	6.53	6.20	5.75	5.54
21	3.79	---	---	4.68	5.13	5.66	6.89	6.88	6.51	6.18	5.74	5.54
22	3.77	---	---	4.68	5.13	5.72	6.88	6.86	6.50	6.17	5.73	5.54
23	3.76	---	---	4.68	5.14	5.81	6.88	6.84	6.48	6.16	5.72	5.53
24	3.73	---	---	4.68	5.14	5.93	6.86	6.86	6.47	6.13	5.70	5.52
25	3.73	---	---	4.69	5.15	6.02	6.85	6.88	6.46	6.11	5.68	5.52
26	3.73	---	---	4.69	5.16	6.09	6.84	6.87	6.45	6.09	5.67	5.51
27	3.71	---	---	4.70	5.17	6.16	6.85	6.87	6.44	6.08	5.66	5.51
28	3.71	3.86	---	4.70	5.23	6.24	6.87	6.90	6.43	6.07	5.65	5.50
29	3.77	3.87	---	4.70	---	6.31	6.88	6.88	6.42	6.05	5.64	5.49
30	3.82	3.86	---	4.70	---	6.37	6.87	6.87	6.40	6.03	5.63	5.48
31	3.80	---	---	4.71	---	6.41	---	6.86	---	6.01	5.63	---
MEAN	3.82	---	---	---	5.02	5.64	6.81	6.84	6.61	6.22	5.78	5.58
MAX	3.93	---	---	---	5.23	6.41	6.89	6.90	6.84	6.40	6.00	5.66
MIN	3.71	---	---	---	4.73	5.28	6.46	6.75	6.40	6.01	5.63	5.48

12406500 LOON LAKE NEAR LOON LAKE, WA

LOCATION.--Lat 48°01'42", long 117°36'14" in SW¼NW¼ sec.11, T.29 N., R.41 E., Stevens County, Hydrologic Unit 17020003, at south end of Loon Lake, 2.7 mi (4.3 km) southeast of town of Loon Lake.

DRAINAGE AREA.--14.1 mi^2 (36.5 km^2).

PERIOD OF RECORD.--April 1950 to current year, chemical analyses October 1970 to September 1971.

REVISED RECORDS.--WSP 1216: 1950. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929. Prior to Sept. 29, 1951, water-stage recorder at site 0.2 mi (0.3 km) north at same datum.

REMARKS.--Elevation controlled by dam at lake outlet. Some pumping for domestic use and irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,382.71 ft (726.250 m) May 3, 1950, but may have been higher sometime in 1951 water year while water-stage recorder was not operating; minimum,observed, 2,378.14 ft (724.857 m) Nov. 8, 1977, but may have been lower during period when water was below the intakes Aug. 1 to Dec. 14, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 2,380.72 ft (725.643 m) May 20; minimum observed, 2,378.14 ft (724.857 m) Nov. 8, but may have been lower during period when water was below the intakes Oct. 1 to Dec. 14.

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	---	2379.12	2379.37	2379.91	2380.51	2380.67	2380.18	2379.76	2379.56
2			---	---	2379.14	2379.36	2379.98	2380.51	2380.66	2380.17	2379.75	2379.56
3			---	---	2379.16	2379.38	2380.02	2380.50	2380.65	2380.17	2379.73	2379.55
4			---	2378.96	2379.16	2379.39	2380.06	2380.50	2380.64	2380.15	2379.71	2379.53
5			---	2378.99	2379.17	2379.48	2380.13	2380.49	2380.62	2380.14	2379.70	2379.54
6			---	2379.06	2379.25	2379.41	2380.18	2380.49	2380.61	2380.14	2379.67	2379.55
7			---	2379.06	2379.31	2379.34	2380.20	2380.49	2380.58	2380.13	2379.67	2379.56
8			---	2379.08	2379.53	2379.38	2380.21	2380.49	2380.56	2380.11	2379.65	2379.61
9			---	2379.09	2379.51	2379.48	2380.21	2380.50	2380.54	2380.09	2379.62	2379.61
10			---	2379.10	2379.46	2379.44	2380.23	2380.51	2380.51	2380.07	2379.60	2379.60
11			---	2379.10	2379.42	2379.46	2380.25	2380.51	2380.48	2380.05	2379.57	2379.59
12			---	2379.09	2379.39	2379.47	2380.26	2380.50	2380.46	2380.04	2379.55	2379.58
13			---	2379.09	2379.35	2379.43	2380.29	2380.54	2380.46	2380.02	2379.54	2379.57
14			---	2379.10	2379.32	2379.46	2380.32	2380.61	2380.46	2380.00	2379.51	2379.56
15			2379.01	2379.10	2379.30	2379.47	2380.35	2380.65	2380.43	2379.98	2379.55	2379.56
16			2379.02	2379.09	2379.28	2379.48	2380.39	2380.66	2380.41	2379.96	2379.68	2379.54
17			2378.96	2379.09	2379.27	2379.50	2380.41	2380.68	---	2379.97	2379.66	2379.53
18			2378.93	2379.09	2379.25	2379.52	2380.41	2380.69	---	2379.97	2379.65	2379.52
19			2378.92	2379.09	2379.25	2379.54	2380.41	2380.71	---	2379.96	2379.63	2379.51
20			2378.92	2379.09	2379.24	2379.56	2380.44	2380.68	---	2379.94	2379.62	2379.51
21			2378.92	2379.09	2379.24	2379.58	2380.45	2380.63	---	2379.92	2379.61	2379.51
22			2378.92	2379.10	2379.25	2379.61	2380.44	2380.62	---	2379.91	2379.61	2379.53
23			2378.92	2379.10	2379.26	2379.66	2380.44	2380.64	2380.28	2379.89	2379.61	2379.53
24			2378.91	2379.10	2379.27	2379.71	2380.44	2380.66	2380.26	2379.87	2379.59	2379.53
25			2378.91	2379.10	2379.27	2379.75	2380.45	2380.67	2380.25	2379.86	2379.59	2379.53
26			2378.91	2379.11	2379.29	2379.78	2380.46	2380.66	2380.24	2379.85	2379.58	2379.52
27			2378.90	2379.10	2379.30	2379.80	2380.47	2380.66	2380.22	2379.84	2379.57	2379.52
28			2378.91	2379.10	2379.33	2379.84	2380.49	2380.70	2380.20	2379.83	2379.56	2379.51
29			2378.95	2379.11	---	2379.87	2380.51	2380.68	2380.20	2379.82	2379.55	2379.51
30			2378.95	2379.10	---	2379.89	2380.52	2380.68	2380.19	2379.80	2379.54	2379.50
31			---	2379.11	---	2379.86	---	2380.67	---	2379.78	2379.54	---
MEAN			---	---	2379.29	2379.55	2380.31	2380.60	---	2379.99	2379.62	2379.54
MAX			---	---	2379.53	2379.89	2380.52	2380.71	---	2380.18	2379.76	2379.61
MIN			---	---	2379.12	2379.34	2379.91	2380.49	---	2379.78	2379.51	2379.50

12408500 MILL CREEK NEAR COLVILLE, WA

LOCATION.--Lat 48°34'44", long 117°51'56", in SW¼NW¼ sec.35, T.36 N., R.39 E., Stevens County, Hydrologic Unit 1702003, on right bank 3.0 mi (4.8 km) northeast of Colville, 5.3 mi (8.5 km) downstream from North Fork, and at mile 10.9 (17.5 km).

DRAINAGE AREA.--83.0 mi^2 (215 km^2).

PERIOD OF RECORD.--October 1939 to September 1972 (discontinued). Re-established October 1977 to current year.

REVISED RECORDS.--WSP 1042: 1940, 1942. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude 1,950 ft (594 m) from topographic map. Prior to Mar. 2, 1940; nonrecording gage and Mar. 2, 1940, to Oct. 5, 1959, water-stage recorder at site 0.5 mi (0.8 km) upstream at different datum (used as supplementary gage Nov. 2, 1952 to Oct. 5, 1959). Nov. 2, 1952, to Oct. 5, 1959, nonrecording gage and crest-stage gage at site 300 ft (90 m) upstream at datum 0.47 ft (0.143 m) higher.

REMARKS.--Records excellent. No regulation. Diversions for irrigation of about 50 acres (20 hm^2) above station.

AVERAGE DISCHARGE.--34 years (water years 1940-72, 1978) 47.4 ft^3/s (1.342,m^3/s), 7.76 in/yr (197 mm/yr), 34,340 acre-ft/yr (42.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 694 ft^3/s (19.7 m^3/s) Apr. 24, 1969, gage height, 5.37 ft (1.637 m); maximum gage height, 5.65 ft (1.722 m) May 10, 1961 (backwater from bridge); minimum discharge, 3.2 ft^3/s (0.091 m^3/s) Jan. 10, 1962, result of freezeup, but may have been less during period of no gage-height record Feb. 1-4, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 253 ft^3/s (7.16 m^3/s) May 16, gage height, 3.85 ft (1.174 m); minimum daily, 4.5 ft^3/s (0.13 m^3/s) Jan. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	7.6	8.4	5.0	11	14	206	187	100	38	18	21
2	5.2	8.7	8.7	4.5	11	13	212	182	94	35	18	19
3	5.2	9.1	8.7	5.4	11	13	184	176	89	34	18	18
4	5.3	8.7	8.7	7.0	11	14	167	168	83	38	17	17
5	5.3	8.7	7.6	10	11	14	224	155	80	49	17	17
6	5.2	8.7	7.0	16	14	13	188	140	75	39	16	17
7	5.2	8.7	6.8	13	16	13	169	132	71	34	15	17
8	5.0	8.7	6.4	14	18	15	163	126	68	35	15	25
9	5.2	8.7	6.0	13	17	17	153	125	65	34	14	23
10	5.2	8.7	7.0	13	16	18	155	126	65	32	14	21
11	5.2	8.7	10	13	15	18	165	129	64	31	14	19
12	5.2	8.7	14	12	14	19	154	126	60	30	15	19
13	5.5	9.1	20	12	14	19	144	124	63	28	23	18
14	5.5	10	33	12	14	18	134	153	63	27	21	18
15	5.5	11	37	12	14	17	131	182	65	26	22	17
16	5.5	10	39	12	14	18	131	236	61	27	30	18
17	5.8	10	26	12	14	18	129	228	58	30	24	17
18	5.8	9.9	22	12	14	19	123	201	54	34	23	17
19	5.8	9.1	18	12	14	23	125	184	50	29	21	17
20	5.8	8.0	14	12	14	27	165	173	47	27	20	16
21	5.8	6.8	12	12	14	32	162	165	45	25	19	17
22	5.8	5.6	11	13	14	41	150	154	43	24	19	17
23	5.8	5.3	10	12	14	54	141	142	42	23	25	17
24	6.0	5.3	8.0	12	15	145	135	144	41	22	22	16
25	6.4	5.4	7.0	11	14	135	135	146	46	21	22	16
26	6.4	5.6	6.5	11	14	132	145	128	45	20	22	16
27	6.4	5.8	6.2	11	14	134	169	119	41	23	20	16
28	6.4	6.4	5.6	10	14	146	197	116	38	21	19	17
29	7.0	7.6	5.4	10	---	173	216	129	36	20	18	17
30	7.0	8.0	5.6	9.5	---	196	204	112	36	19	17	16
31	7.0	---	5.4	9.0	---	211	---	104	---	19	18	---
TOTAL	177.6	242.6	391.0	343.3	390	1739	4876	4712	1788	894	596	536
MEAN	5.73	8.09	12.6	11.1	13.9	56.1	163	152	59.6	28.8	19.2	17.9
MAX	7.0	11	39	16	18	211	224	236	100	49	30	25
MIN	5.0	5.3	5.4	4.5	11	13	123	104	36	19	14	16
CFSM	.07	.10	.15	.13	.17	.68	1.96	1.83	.72	.35	.23	.22
IN.	.08	.11	.18	.15	.17	.78	2.19	2.11	.80	.40	.27	.24
AC-FT	352	481	776	681	774	3450	9670	9350	3550	1770	1180	1060

WTR YR 1978 TOTAL 16685.5 MEAN 45.7 MAX 236 MIN 4.5 CFSM .55 IN 7.48 AC-FT 33100

12409000 COLVILLE RIVER AT KETTLE FALLS, WA

LOCATION.--Lat 48°35'40", long 118°03'41", in NE¼NE¼ sec.30, T.36 N., R.38 E., Stevens County, Hydrologic Unit 17020003, on right bank 600 ft (180 m) downstream from Washington Water Power Co.'s hydroelectric plant at foot of Meyers Falls, 1.0 mi (1.6 km) south of town of Kettle Falls, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--1,007 mi^2 (2,608 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1922 to current year. Published as "as Meyers Falls" 1922-38.

REVISED RECORDS.--WSP 1316: 1938(M), 1941(M), 1948(M). WSP 1636: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,400 ft (427 m), from topographic map. Prior to Oct. 21, 1932, nonrecording gage at site 500 ft (150 m) upstream at different datum. Oct. 21, 1932, to Sept. 19, 1938, nonrecording gages at site 200 ft (60 m) upstream at different datum. Sept. 20, 1938, to Mar. 20, 1949, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records excellent. Several ditches above station divert water for irrigation. Regulation at low flow by powerplant.

AVERAGE DISCHARGE.--56 years, 304 ft^3/s (8.609 m^3/s), 220,200 acre-ft/yr (272 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,440 ft^3/s (97.4 m^3/s) Jan. 21, 1974, gage height, 9.84 ft (2.999 m); maximum gage height, 10.17 ft (3.100 m) Apr. 23, 1956; minimum discharge observed, 0.5 ft^3/s (0.014 m^3/s) Aug. 15, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,250 ft^3/s (35.4 m^3/s) Apr. 4, gage height, 7.28 ft (2.219 m) from A-35 recorder chart and inside high-water mark; minimum, 13 ft^3/s (0.37 m^3/s) Oct. 22, gage height, 4.71 ft (1.436 m) result of regulation by powerplant.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	90	109	84	189	222	1080	931	520	158	77	117
2	62	88	100	83	116	261	1130	894	488	158	68	124
3	62	95	110	91	126	169	1140	857	442	155	66	125
4	59	87	108	92	157	193	1110	821	413	155	62	124
5	66	83	97	98	147	207	1100	791	391	174	62	121
6	66	79	89	100	144	194	1150	747	363	180	62	118
7	67	81	89	118	173	192	1110	703	345	162	61	121
8	67	78	84	131	217	209	1070	662	329	152	52	146
9	68	81	83	121	281	256	1020	628	319	149	48	184
10	67	78	65	131	260	304	970	635	307	149	50	174
11	66	88	81	118	218	328	946	635	303	142	50	152
12	66	83	137	118	202	334	916	628	292	139	49	146
13	66	88	197	122	188	356	879	615	287	132	55	143
14	66	86	289	123	186	366	850	655	291	122	88	118
15	66	92	355	129	181	342	814	791	301	116	86	140
16	66	95	381	139	168	326	806	879	291	104	138	116
17	65	89	324	127	165	330	814	954	287	127	161	111
18	64	86	241	129	163	352	791	939	274	149	141	116
19	65	73	199	129	160	387	754	901	257	168	129	118
20	65	46	173	131	158	424	791	850	237	138	101	118
21	65	30	112	133	161	457	850	806	222	125	106	109
22	68	73	132	138	176	487	828	754	208	118	112	113
23	68	65	144	133	198	527	799	696	201	111	113	121
24	66	66	68	130	216	648	761	689	197	102	125	121
25	69	66	68	115	218	776	739	710	201	93	127	121
26	73	71	74	122	209	821	725	703	218	91	118	116
27	67	82	82	122	211	857	754	655	204	84	116	113
28	71	95	80	120	223	879	828	615	184	83	115	113
29	74	106	86	121	---	924	916	615	168	85	105	113
30	83	109	86	106	---	970	954	583	168	85	100	111
31	89	---	85	100	---	1030	---	548	---	85	103	---
TOTAL	2094	2429	4328	3654	5135	14068	27395	22882	8700	3991	2846	3783
MEAN	67.5	81.0	140	118	183	454	913	738	290	129	91.8	126
MAX	89	109	381	139	281	1030	1150	954	526	180	161	184
MIN	59	30	65	83	109	169	725	548	168	83	48	109
AC-FT	4150	4820	8580	7250	10190	27900	54340	45390	17260	7920	5650	7500

CAL YR 1977 TOTAL 35069.6 MEAN 96.1 MAX 381 MIN 4.8 AC-FT 69560
WTR YR 1978 TOTAL 101305.0 MEAN 278 MAX 1150 MIN 30 AC-FT 200900

12409000 COLVILLE RIVER AT KETTLE FALLS, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-72, 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: November 1969 to June 1971.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, and specific conductance furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
OCT , 1977							
25...	1320	66	--	6.6	8.5	--	41
NOV							
15...	1045	93	375	6.9	5.1	--	27
MAR , 1978							
07...	1100	191	310	7.1	4.0	20	24
APR							
11...	1050	450	245	7.7	8.4	10	18
MAY							
09...	1130	632	270	7.0	13.5	10	27
JUN							
06...	1215	316	305	7.8	18.9	10	6
JUL							
11...	0900	143	290	7.9	15.9	10	11
AUG							
08...	1400	48	375	7.4	24.8	10	18
SEP							
12...	1315	140	340	8.2	13.2	15	20

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977						
25...	--	.10	.05	.09	.04	.12
NOV						
15...	--	--	.10	.11	.08	.25
MAR , 1978						
07...	12.0	.91	.21	.10	.07	.21
APR						
11...	11.0	1.4	.08	.10	.02	.06
MAY						
09...	9.8	.14	.06	.04	.01	.03
JUN						
06...	8.7	.01	.06	.04	.01	.03
JUL						
11...	9.3	.26	.09	.06	.04	.12
AUG						
08...	8.3	.12	.10	.06	.08	.00
SEP						
12...	10.0	.16	.06	.09	.04	.12

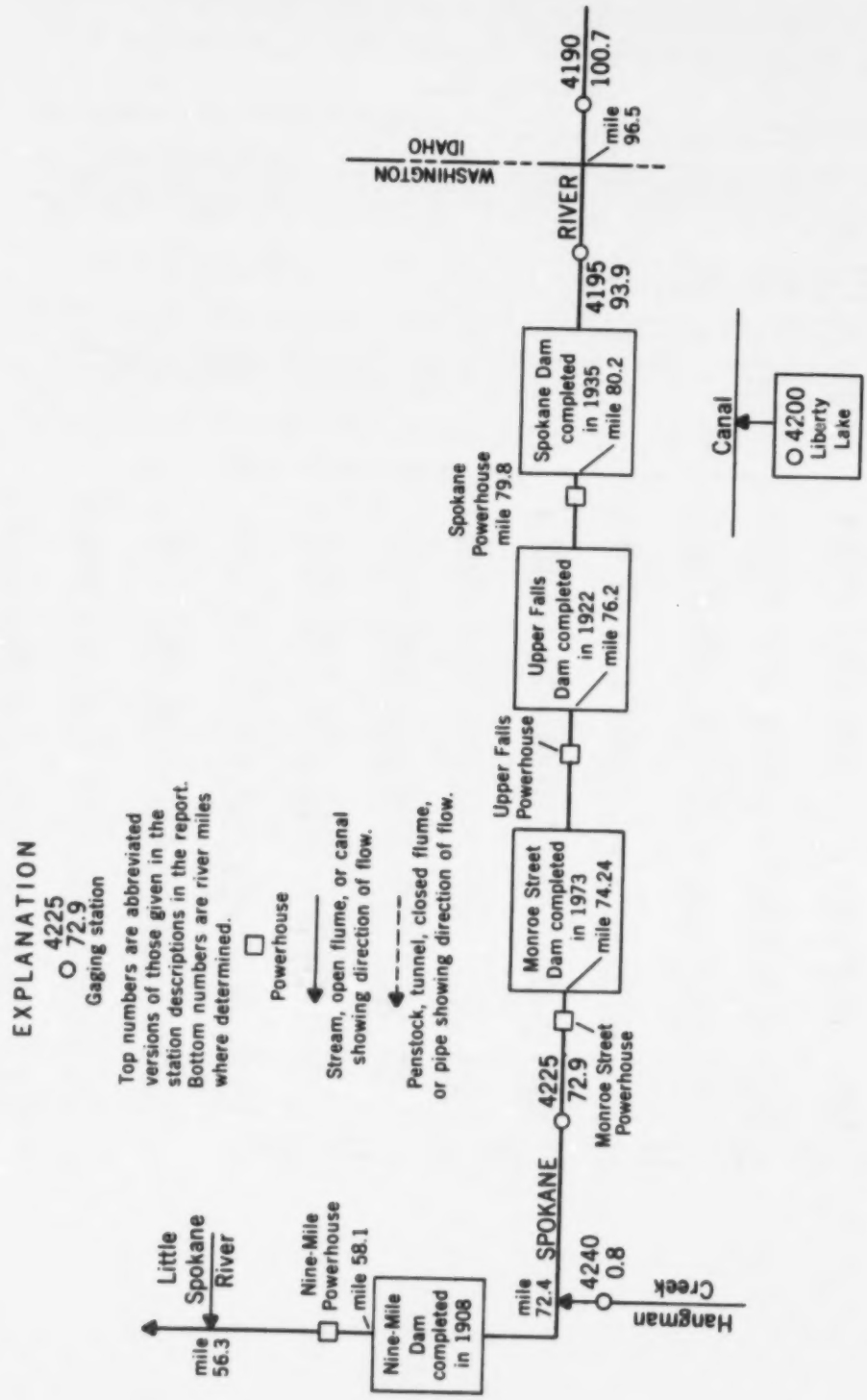

Figure 8. Gaging stations in Spokane River basin above Little Spokane River.

12419000 SPOKANE RIVER NEAR POST FALLS, ID

LOCATION.--Lat 47°42'10", long 116°58'40", in SW¼SW¼ sec.4, T.50 N., R.5 W., Kootenai County, Hydrologic Unit 17010305, on right bank 1 mi (1.6 km) downstream from powerplant of Washington Water Power Co., 1.5 mi (2.4 km) southwest of Post Falls, and at mile 100.7 (162.0 km).

DRAINAGE AREA.--3,840 mi² (9,946 km²), approximately, of which about 122 mi² (316 km²) in the vicinity of Hayden Lake is noncontributing to this station.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1912 to current year (prior to January 1913 monthly discharge only, published in WSP 870 and 1736). Prior to October 1949, published as "at Post Falls".

GAGE.--Water-stage recorder. Datum of gage is 2,050 ft (624.840 m) referred to originally accepted elevation of 2,157.40 ft (657.575 m) for the Geological Survey bench mark in southeast corner of Idaho First National Bank Building (see WSP 882). National Geodetic Vertical Datum of 1929 is at 2,047.00 ft (623.92 m) gage datum. Jan. 1, 1913, to Nov. 21, 1920, nonrecording gage and Nov. 22, 1920, to Sept. 15, 1934, recording gage 0.6 mi (1.0 km) upstream. From Nov. 16, 1949, at present site. Datum of all gages prior to Sept. 30, 1964, 50 ft (15.2 m) lower.

REMARKS.--Records excellent. Rathdrum Prairie Canal (see sta 12418000) diverts water above gage for irrigation. Figures of daily discharge do not include water diverted by this canal. Flow regulated by dam at Post Falls and affected by storage in Coeur d'Alene Lake (see sta 12415500).

AVERAGE DISCHARGE.--River only, 66 years, 6,307 ft³/s (179 m³/s), 4,569,000 acre-ft/yr (5,634 hm³/yr); combined river and diversions above gage, 66 years, 6,396 ft³/s (181 m³/s), 4,634,000 acre-ft/yr (5,714 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,100 ft³/s (1,419 m³/s) when recorder was not operating Dec. 25, 1933 (determined from unpublished records collected by Washington Water Power Co. for station at Liberty Bridge); minimum, 65 ft³/s (1.84 m³/s) July 25, 30, 1973; minimum gage height, 4.68 ft (1.426 m) July 20, 21, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,700 ft³/s (643 m³/s) Apr. 4, gage height, 18.58 ft (5.663 m); minimum, 98 ft³/s (2.78 m³/s) Aug. 14, gage height, 4.90 ft (1.494 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1860	1660	2910	5960	6610	5770	19800	14000	12800	3560	949	1750
2	1860	1670	4560	6320	6420	5760	21100	14200	12500	3580	808	1750
3	1790	1660	8800	6250	5660	5740	21800	14300	12200	4020	702	1750
4	1740	1660	16100	5770	4890	5710	22100	14200	12200	4370	702	1760
5	1730	1660	17000	5040	4300	5710	22000	14300	12200	4590	711	1740
6	1680	1670	16900	5590	4320	5690	21300	14000	12200	4590	895	1750
7	1640	1770	16300	6120	4340	5660	20700	13700	9460	4210	1220	1680
8	1650	2150	8940	6120	4960	5660	20000	13100	9660	3490	943	1760
9	1640	2140	6680	5910	7710	6290	19100	12700	5500	2720	773	1740
10	1640	2140	7090	5280	8250	7070	18300	12600	5690	3100	765	1750
11	1650	2140	10200	5410	8300	7380	17500	12700	5700	3300	748	1760
12	1640	2150	13200	5420	8290	7480	16800	12900	5180	3290	749	1760
13	1640	2150	15100	5390	8200	7810	16200	13000	5320	2950	777	1740
14	1640	2150	16700	5380	8050	7980	15100	13200	5810	2240	744	1750
15	1630	2150	18400	5380	8020	7950	14300	14100	5830	1950	1550	1770
16	1630	2160	19600	5370	7890	7880	13900	14700	5820	1960	1900	1750
17	1650	2160	20000	5370	7150	7810	13500	16200	5760	1940	2000	1740
18	1660	2170	20100	5360	6630	7740	12100	16800	5710	1940	2000	1740
19	1660	2160	19500	5350	6170	8010	11800	16900	5330	1940	2000	1750
20	1650	2160	18500	5360	5850	8830	11700	17200	4920	1940	2000	1740
21	1660	2150	17500	5360	5570	9720	11600	17300	4680	1930	1800	1760
22	1660	2140	15200	5380	5170	10100	11500	17400	4700	1950	1840	1760
23	1660	2150	13000	5360	5160	11200	11300	17300	4460	1820	2080	1760
24	1650	2160	11200	5230	5550	12100	11100	17300	4320	1570	1190	1750
25	1650	2160	9350	5340	5760	13800	10900	17000	4510	1480	1500	1750
26	1660	2160	6560	5780	5760	14800	10800	16200	4450	1470	2100	1750
27	1650	2140	5550	6050	5620	15600	11000	15600	4280	1470	2100	1740
28	1660	2510	5610	5980	5790	16200	11500	14900	3800	1390	2090	1760
29	1680	2810	5590	5960	---	16900	12600	14400	3520	1250	2080	1760
30	1670	2820	5590	6300	---	17800	13300	13900	3610	1240	1910	1770
31	1660	---	5570	6340	---	18700	---	13400	---	1090	1740	---
TOTAL	51940	62930	377300	175230	176390	294850	464700	459500	202120	78340	43366	52510
MEAN	1675	2098	12170	5653	6300	9511	15490	14820	6737	2527	1399	1750
MAX	1860	2820	20100	6340	8300	18700	22100	17400	12800	4590	2100	1770
MIN	1630	1660	2910	5040	4300	5660	10800	12600	3520	1090	702	1680
AC-FT	103000	124800	748400	347600	349900	584800	921700	911400	400900	155400	86020	104200

CAL YR 1977 TOTAL 1118197 MEAN 3064 MAX 20100 MIN 77 AC-FT 2218000
WTR YR 1978 TOTAL 2439176 MEAN 6683 MAX 22100 MIN 702 AC-FT 4838000

12419000 SPOKANE RIVER NEAR POST FALLS, ID--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected 0.2 mi (0.3 km) upstream from gage.

PERIOD OF RECORD.--Water years 1973 to current year.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	PH (UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
OCT , 1977												
17...	1130	1650	7.3	12.0	12.5	1	9.6	97	13	K3	34	0
NOV												
15...	1100	2160	6.1	5.0	8.0	1	10.3	93	8	K1	27	0
DEC												
12...	1230	14500	7.2	0.0	6.5	1	13.0	112	1	K1	24	0
JAN , 1978												
23...	1200	5390	6.6	-1.0	3.0	1	12.2	97	15	<1	24	0
FEB												
13...	1015	8210	6.7	-1.0	2.0	2	13.9	108	13	<1	24	0
MAR												
20...	1130	9020	6.8	4.0	6.0	2	13.8	120	7	K1	29	0
APR												
17...	1015	13400	6.4	10.5	6.5	2	10.0	88	9	K16	24	0
MAY												
22...	1130	17100	6.7	12.0	13.0	1	12.0	122	47	<1	29	0
JUN												
22...	1330	5050	7.7	24.0	21.0	1	9.1	109	7	<1	37	0
JUL												
18...	1115	1950	7.3	17.5	21.0	0	8.3	99	17	K7	24	0
AUG												
21...	1100	1980	7.7	21.0	20.0	1	8.1	95	0	K3	24	0
SEP												
18...	0945	1710	7.7	9.0	14.0	1	8.8	91	10	200	26	0

DATE	ALKA-LINITY (MG/L AS CACO3)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)
OCT , 1977												
17...	28	4.8	38	.04	134	9	.01	.00	.17	.17	.18	.80
NOV												
15...	22	5.6	43	.06	251	5	.11	.00	.22	.22	.33	1.5
DEC												
12...	20	6.3	38	.05	1490	8	.03	.02	.16	.18	.21	.93
JAN , 1978												
23...	20	6.8	38	.05	553	7	.03	.01	.04	.05	.08	.35
FEB												
13...	20	8.4	46	.06	1020	20	.07	.01	.01	.02	.09	.40
MAR												
20...	24	8.4	38	.05	925	0	.06	.00	.20	.20	.26	1.2
APR												
17...	20	9.4	41	.06	1480	5	.04	.01	.31	.32	.36	1.6
MAY												
22...	24	7.6	36	.05	1660	7	.02	.01	.22	.23	.25	1.1
JUN												
22...	30	8.8	31	.04	423	5	.03	.01	.13	.14	.17	.75
JUL												
18...	20	7.9	36	.05	190	5	.02	.01	.24	.25	.27	1.2
AUG												
21...	20	7.7	38	.05	203	0	.00	.00	.22	.22	.22	.97
SEP												
18...	21	8.2	34	.05	157	7	.01	.01	.17	.18	.19	.84

12419000 SPOKANE RIVER NEAR POST FALLS, ID--Continued

WATER QUALITY DATA

DATE	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	OIL AND GREASE (MG/L)
OCT , 1977											
17...	.03	0	<10	20	<10	20	<100	.0	0	120	0
NOV											
15...	.02	1	11	4	12	40	43	.0	0	180	0
DEC											
12...	.00	1	6	0	3	120	42	.2	0	200	0
JAN , 1978											
23...	.03	1	0	0	0	60	59	.1	0	200	0
FEB											
13...	.02	1	6	0	4	80	40	.4	0	220	0
MAR											
20...	.02	4	0	0	4	140	4	.0	2	230	0
APR											
17...	.02	1	11	0	7	180	77	.0	0	190	0
MAY											
22...	.00	1	2	10	11	160	9	.1	0	200	0
JUN											
22...	.01	0	4	5	7	240	5	.2	0	110	0
JUL											
18...	.02	2	22	0	9	90	80	.1	0	110	0
AUG											
21...	.02	1	11	0	9	0	66	.0	0	90	0
SEP											
18...	.00	0	9	0	6	100	65	.0	0	90	0

DATE	TIME	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
NOV , 1977											
15...	1100	29	7	8.3	2.1	1.5	18	.1	.7	8.6	.4
MAY , 1978											
22...	1130	24	0	7.2	1.4	1.6	12	.1	.7	9.3	.5

12419500 SPOKANE RIVER ABOVE LIBERTY BRIDGE, NEAR OTIS ORCHARDS, WA

LOCATION.--Lat 47°40'56", long 117°05'05", in NW¼ sec.11, T.25 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on left bank 1.2 mi (1.9 km) upstream from Liberty Bridge, 1.8 mi (2.9 km) southeast of Otis Orchards, 3.3 mi (5.3 km) northeast of Greenacres, and at mile 93.9 (151.1 km).

DRAINAGE AREA.--3,880 mi² (10,050 km²), approximately.

PERIOD OF RECORD.--January 1929 to December 1936, March 1937, August 1937 to August 1941, October 1941 to October 1942, February to May 1943, August 1943 to November 1946, February to July 1947, September 1947 to February 1948; May to November 1948, March to November 1949, and April to September 1950 (monthly discharge only); October 1950 to current year. Chemical analyses July 1959 to September 1971; water temperatures December 1963 to September 1965.

GAGE.--Water-stage recorder. Datum of gage is 2,000 ft (609.6 m) National Geodetic Vertical Datum of 1929 (levels by Washington Water Power Co.).

REMARKS.--Records excellent except those for periods of no gage-height record, Feb. 13 to Mar. 27 and Aug. 13 to Sept. 14, which are good. Flow partly regulated by dam at Post Falls, Idaho, 8.2 mi (13.2 km) upstream and affected by storage in Coeur d'Alene Lake. Rathdrum Prairie Canal, 12.7 mi (20.4 km) upstream, diverts water for irrigation of about 3,000 acres (12 km²) above station.

AVERAGE DISCHARGE.--42 years (water years 1930-36, 1938-40, 1942, 1944-46, 1951-78), 6,166 ft³/s (174.6 m³/s), 4,467,000 acre-ft/yr (5,510 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,100 ft³/s (1,420 m³/s) Dec. 25, 1933, gage height, 22.24 ft (6.779 m); minimum daily discharge, 38 ft³/s (1.08 m³/s) July 20, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,000 ft³/s (623 m³/s) Apr. 4, gage height, 17.18 ft (5.236 m); minimum daily discharge, 600 ft³/s (17.0 m³/s) Aug. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1770	1550	2890	5570	6600	5960	19600	13900	12700	3670	822	1650
2	1770	1560	4170	6270	6470	5920	20700	14100	12400	3670	722	1650
3	1710	1550	7380	6330	5620	5910	21500	14200	12200	4040	612	1650
4	1630	1540	15400	6345	4970	5870	21800	14000	12100	4440	611	1700
5	1630	1550	16700	5500	4400	5850	21700	14100	12100	4670	617	1700
6	1580	1560	16600	4690	4430	5860	21100	13900	12100	4660	729	1700
7	1530	1610	16000	6190	4460	5850	20600	13600	9490	4320	1090	1700
8	1540	2090	9240	6280	4970	5840	19900	13000	9970	3670	869	1600
9	1530	2100	6700	6240	7640	5840	19000	12600	5490	2720	665	1700
10	1530	2090	7020	5750	8200	6850	18200	12500	5690	3120	663	1700
11	1540	2090	9900	5410	8240	7230	17300	12600	5720	3350	651	1700
12	1530	2110	12900	5400	8230	7340	16600	12600	5260	3350	649	1700
13	1530	2110	14000	5300	8160	7440	15900	12900	5200	3040	670	1700
14	1530	2120	16200	5370	8100	7800	15000	13000	5700	2290	670	1700
15	1520	2120	17000	5370	7950	7920	14200	13900	5800	1910	760	1700
16	1520	2130	19000	5360	8100	7950	13800	14500	5800	1920	1600	1670
17	1540	2130	19400	5370	7950	7930	13400	15900	5740	1900	1900	1690
18	1540	2140	19400	5370	6830	7810	12100	16600	5670	1900	1900	1670
19	1540	2130	18900	5360	6710	7770	11800	16800	5370	1900	1900	1670
20	1530	2140	17900	5360	6020	8320	11700	17000	4990	1900	1900	1660
21	1540	2120	16900	5370	5950	9500	11600	17200	4750	1890	1900	1680
22	1540	2100	14600	5370	5450	9900	11500	17200	4770	1910	1550	1680
23	1540	2120	12500	5360	5260	10700	11400	17200	4560	1790	2000	1680
24	1540	2130	11000	5250	5270	11600	11200	17100	4410	1510	2000	1670
25	1540	2140	9800	5350	5920	13000	11000	16000	4580	1370	600	1670
26	1540	2140	8100	5730	5920	14200	10800	16000	4560	1370	1900	1670
27	1540	2110	6130	6030	5910	15200	11000	15400	4380	1360	2000	1660
28	1550	2410	5450	5900	5720	15900	11500	14700	3940	1300	2000	1670
29	1570	2800	5620	5930	---	16600	12500	14200	3610	1120	2000	1680
30	1570	2830	5630	6260	---	17500	13100	13700	3690	1090	2000	1690
31	1550	---	5580	6360	---	18500	---	13200	---	995	1700	---
TOTAL	48568	61320	368610	175950	179450	289940	461500	454600	202900	78185	39650	50360
MEAN	1566	2044	11890	5676	6409	9353	15380	14660	6763	2522	1279	1679
MAX	1770	2830	19400	6360	8240	18500	21800	17200	12700	4670	2000	1700
MIN	1520	1540	2890	4690	4400	5840	10800	12500	3610	995	600	1600
AC-FT	96320	121600	731100	349000	355900	575100	915400	901700	402500	155100	78650	99890

CAL YR 1977 TOTAL 1087551 MEAN 2980 MAX 19400 MIN 38 AC-FT 2157000
WTR YR 1978 TOTAL 2411025 MEAN 6606 MAX 21800 MIN 600 AC-FT 4782000

12419800 NEWMAN LAKE NEAR NEWMAN LAKE, WA

LOCATION.--Lat 47°45'52", long 117°05'47", in NE¼SE¼ sec.10, T.26 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on southwest shore 3.0 mi (4.8 km) northwest of town of Newman Lake.

DRAINAGE AREA.--28.6 mi^2 (74.1 km^2).

PERIOD OF RECORD.--September 1958 to March 1968 (fragmentary); April 1968 to January 1970; February 1970 to current year (fragmentary). Chemical analyses October 1970 to September 1971.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Altitude of gage is 2,120 ft (646 m), from topographic map. Apr. 4, 1968 to Jan. 27, 1970, water-stage recorder at site 0.7 mi (1.1 km) northeast across lake at same datum.

REMARKS.--Lake elevation regulated by concrete headworks at outlet. Many small diversions for domestic use by pumping from lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 11.62 ft (3.542 m) Jan. 29, 1974; minimum observed, 7.08 ft (2.158 m) Oct. 25, Nov. 2.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 11.10 ft (3.383 m) May 27; minimum observed, 7.08 ft (2.158 m) Oct. 25, Nov. 2.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	8.26	---	---	10.60	---	10.20	---	---
2	---	7.08	---	---	---	---	---	---	---	---	9.74	9.70
3	---	---	---	---	---	---	---	---	10.70	10.20	---	---
4	7.17	---	---	---	8.29	---	10.66	---	---	---	9.72	---
5	---	7.12	7.48	---	8.30	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	10.58	---	---	9.68	9.68
7	---	---	---	---	---	8.76	---	10.60	10.40	---	---	---
8	7.16	---	7.54	---	8.46	---	10.72	---	---	10.20	---	---
9	---	7.18	---	---	---	8.80	---	---	---	---	9.62	9.70
10	---	7.20	---	8.28	---	8.82	---	---	10.38	---	---	9.70
11	---	---	---	---	---	---	10.74	---	---	---	---	---
12	7.12	7.23	---	---	---	---	---	---	---	---	9.59	---
13	---	---	7.76	---	---	8.84	---	10.68	10.36	---	---	---
14	---	---	---	---	---	---	---	---	---	---	9.56	9.64
15	7.12	7.24	8.08	---	8.68	---	10.72	---	---	10.06	9.62	---
16	---	---	---	---	---	---	---	---	---	---	---	9.50
17	---	---	---	---	---	8.91	10.70	10.98	---	10.02	---	---
18	7.11	---	---	8.28	8.84	---	---	---	---	---	---	---
19	7.10	7.24	---	---	---	---	---	---	---	---	9.70	9.30
20	---	7.24	8.20	---	---	9.30	---	10.98	---	10.02	---	---
21	---	---	---	8.26	8.68	9.34	---	---	10.22	---	---	---
22	7.10	---	---	---	---	---	10.68	---	---	9.98	9.70	---
23	---	---	---	---	---	---	---	---	---	---	---	9.18
24	---	---	8.2[illegible]	---	---	---	10.58	10.99	10.21	---	---	---
25	7.08	---	---	8.26	8.68	---	---	---	10.21	9.94	---	9.08
26	---	---	---	8.25	---	---	---	---	---	---	9.70	---
27	---	---	---	---	---	9.77	---	11.10	---	---	---	---
28	---	---	---	8.2[illegible]	---	---	---	---	---	---	---	9.00
29	7.09	---	---	---	---	---	10.60	---	---	9.89	---	---
30	---	---	---	---	---	---	---	---	---	---	9.66	---
31	7.11	---	---	---	---	---	---	10.80	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

12420000 LIBERTY LAKE AT LIBERTY LAKE, WA

LOCATION.--Lat 47°39'09", long 117°05'20", in NE¼ sec.22, T.25 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on right wall of concrete outlet flume at town of Liberty Lake, 15 mi (24.1 km) east of Spokane.

DRAINAGE AREA.--13.3 mi^2 (34.4 km^2).

PERIOD OF RECORD.--December 1950 to December 1955 (fragmentary), January 1956 to current year. Chemical analyses October 1970 to September 1971.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is at mean sea level. Prior to Oct. 1, 1958, published at datum 2,046.48 ft (623.767 m) higher.

REMARKS.--Stage controlled by gates at outlet. Some pumping from lake for domestic use.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,051.81 ft (625.392 m), from high-water mark, occurred during period Jan. 19 to Feb. 5, 1974; minimum observed, 2,045.56 ft (623.487 m) Nov. 11, 15, 1977.

EXTREMES FOR CURRENT YEAR: Maximum elevation observed, 2,049.62 ft (624.724 m), May 24; minimum observed, 2,045.56 ft (623.487 m) Nov. 11, 15.

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	2048.20	---	---	---	---	---	2048.10
2	---	---	---	2046.70	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	2049.26	---	---	2049.04	---	---
4	---	---	---	---	2047.28	---	---	2049.46	---	---	2048.40	2048.05
5	---	---	2045.79	---	---	---	---	---	2049.30	---	---	---
6	---	---	---	2046.76	---	---	---	---	---	---	---	---
7	---	---	---	---	---	2048.26	2049.45	---	---	---	2048.30	2048.00
8	---	---	---	---	2047.50	---	---	---	---	2049.00	---	---
9	---	---	---	2046.80	---	---	---	---	---	---	---	---
10	---	---	2045.98	---	---	---	---	---	2049.30	2049.00	---	---
11	2045.76	2045.56	---	---	2047.70	2048.30	---	2049.50	---	---	2048.28	---
12	---	---	2045.96	---	---	---	---	---	2049.26	---	---	---
13	---	---	2045.93	2046.86	---	---	2049.45	---	---	---	---	---
14	---	---	---	---	2047.90	2048.40	---	---	---	---	---	2047.94
15	2045.76	2045.56	2046.10	---	---	---	---	2049.60	---	2048.90	---	2047.90
16	---	---	---	2046.90	---	---	---	---	2049.22	---	---	---
17	---	---	---	---	---	---	2049.45	---	---	2048.80	---	---
18	2045.76	---	---	---	2048.00	2048.60	---	---	---	---	---	2047.88
19	---	---	2046.20	---	---	---	---	2049.60	2049.18	---	---	---
20	---	---	---	---	---	---	---	---	---	2048.77	---	---
21	---	---	---	2047.00	2048.06	---	2049.40	---	2049.18	---	2048.18	---
22	---	---	---	---	---	---	---	---	---	2048.70	---	2047.84
23	---	---	2046.40	---	---	---	2049.40	---	---	---	---	---
24	---	---	---	---	---	---	---	2049.62	---	2048.60	---	---
25	---	---	---	---	2048.10	2048.80	---	---	---	---	2048.18	2047.80
26	---	2045.60	2046.50	2047.08	---	---	---	---	2049.14	---	---	---
27	---	---	---	---	---	2048.83	2049.40	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	2048.50	2048.10	---
29	---	---	2046.60	---	---	---	---	2049.50	---	---	---	2047.78
30	---	2045.78	---	---	---	2049.00	---	---	2049.10	---	---	---
31	---	---	---	---	---	---	---	---	---	2048.45	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

12422500 SPOKANE RIVER AT SPOKANE, WA

LOCATION.--Lat 47°39'34", long 117°26'53", in SW¼SW¼ sec.13, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010305, on right bank at Cochran Street in Spokane, 0.5 mi (0.8 km) upstream from Hangman Creek, and at mile 72.9 (117.3 km).

DRAINAGE AREA.--4,290 mi^2 (11,100 km^2), approximately.

PERIOD OF RECORD.--April 1891 to current year. Chemical analyses October 1972 to September 1973.

REVISED RECORDS.--WSP 532: 1891-1904. WSP 1246: Drainage area. WSP 1286: 1907-9.

GAGE.--Water-stage recorder. Datum of gage is 1,696.6 ft (517.12 m) National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to July 1, 1921, water-stage recorders and nonrecording gages at several sites within 4 mi (6 km) of present site at various datums.

REMARKS.--Records excellent except those for periods of no gage-height record or faulty records, which are good. Flow slightly regulated by powerplants of Washington Water Power Co. at Post Falls, Idaho, 28.8 mi (46.3 km) upstream and at Spokane, 1.3 mi (2.1 km) upstream, and by Coeur d'Alene Lake, Idaho. Rathdrum Prairie Canal diverts water above station for irrigation. In 1946, approximately 22,600 acres (91 km^2), of which about 15,000 acres (61 km^2) utilized surface water, were under irrigation upstream from Spokane. Since 1966 irrigation has been from many wells in the valley near the river with only about 3,000 acres (12 km^2) irrigated from the river.

AVERAGE DISCHARGE.--87 years, 6,888 ft^3/s (195.1 m^3/s) 4,990,000 acre-ft/yr (6,150 hm^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,000 ft^3/s (1,390 m^3/s), estimated, May 31, 1894 (see WSP 532); minimum, 95 ft^3/s (2.69 m^3/s) Sept. 19, 1956, gage height, 15.60 ft (4.755 m); minimum daily, 466 ft^3/s (13.2 m^3/s) Aug. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 23,000 ft^3/s (651 m^3/s) Apr. 6, gage height, 24.95 ft (7.605 m); minimum, 464 ft^3/s (13.1 m^3/s) Sept. 26, gage height, 16.71 ft (5.093 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2080	2020	3220	6250	6880	6170	19700	14100	13300	4120	1320	2010
2	2100	2010	3950	6690	6910	6160	21000	14400	13000	3970	1280	1980
3	2100	2020	6710	6660	6170	6120	21900	14500	12700	4300	1090	2020
4	1970	2020	14400	6320	5680	6120	22300	14400	12500	4590	1120	2020
5	2010	2030	16100	5650	4930	6120	22300	14600	12500	4850	1030	2080
6	2010	2030	16100	5810	4950	6060	21800	14400	12500	4850	1090	2050
7	1910	2010	15700	6470	4930	6060	21200	14000	10200	4670	1420	1970
8	1970	2380	10500	6490	5050	6030	20500	13500	11000	4260	1340	2020
9	1950	2500	6900	6390	7590	6430	19600	13100	6240	3150	1070	2020
10	1940	2450	7020	5770	8350	7200	18700	12900	6340	3450	1040	2020
11	1970	2460	9150	5820	8460	7580	17800	12900	6290	3680	1030	2040
12	1950	2480	12500	5850	8500	7680	17100	13200	5950	3680	1010	2100
13	1970	2510	14300	5790	8430	7940	16500	13300	5720	3500	1240	2080
14	1940	2510	15900	5830	8300	8140	15600	13500	6290	2940	1060	1980
15	1970	2520	17600	5780	8280	8150	14800	14200	6260	2440	1300	2080
16	1940	2510	19100	5800	8170	8110	14400	14800	6260	2460	1990	2040
17	2080	2520	19700	5780	7660	8050	14000	16000	6190	2410	2100	2080
18	1940	2520	19900	5800	7040	7990	12800	16800	6090	2380	2130	2080
19	1860	2520	19400	5760	6710	8160	12400	17000	5860	2380	2140	2050
20	1960	2530	18600	5780	6310	8800	12200	17300	5420	2370	2180	2040
21	1980	2530	17600	5780	6150	9630	12000	17400	5130	2310	2170	2080
22	1970	2530	15600	5780	5680	10100	11900	17500	5110	2320	1980	2020
23	1970	2530	13500	5770	5640	11000	11800	17500	4950	2310	2260	2080
24	1990	2590	11700	5660	5880	11900	11600	17500	4780	2040	1990	2070
25	1980	2640	10200	5780	6160	13400	11400	17200	4820	1850	1410	2160
26	1980	2540	7470	6020	6160	14500	11200	16500	4930	1850	2240	1970
27	1990	2540	6220	6400	6030	15300	11300	15900	4670	1830	2340	1990
28	2000	2800	6240	6370	6180	15900	11700	15400	4380	1830	2380	2020
29	2010	3110	6150	6330	---	16400	12700	14800	4120	1600	2230	2040
30	2050	3120	6080	6520	---	17100	13400	14300	4020	1590	2290	2080
31	2000	---	6050	6700	---	18500	---	13900	---	1560	1970	---
TOTAL	61540	73480	373560	187600	187180	296800	475600	466800	217520	91540	51240	61270
MEAN	1985	2449	12050	6052	6685	9574	15850	15060	7251	2953	1653	2042
MAX	2100	3120	19900	6700	8500	18500	22300	17500	13300	4850	2380	2160
MIN	1860	2010	3220	5650	4930	6030	11200	12900	4020	1560	1010	1970
AC-FT	122100	145700	741000	372100	371300	588700	943400	925900	431500	181600	101600	121500

CAL YR 1977 TOTAL 1225018 MEAN 3356 MAX 19900 MIN 523 AC-FT 2430000
WTR YR 1978 TOTAL 2544130 MEAN 6970 MAX 22300 MIN 1010 AC-FT 5046000

12424000 HANGMAN CREEK AT SPOKANE, WA

LOCATION.--Lat 47°39'10", long 117°26'55", in NW¼ sec.24, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010306, on left bank 0.3 mi (0.5 km) downstream from bridge on Interstate 90 in Spokane and at mile 0.8 (1.3 km).

DRAINAGE AREA.--689 mi^2 (1,785 km^2).

PERIOD OF RECORD.--April 1948 to September 1977. October 1977 to current year (discharges above 20 ft^3/s (0.57 m^3/s) only). Prior to October 1958, published as Latah Creek at Spokane.

REVISED RECORDS.--WSP 1933: Drainage area. WSP 2133: 1965(P).

GAGE.--Water-stage recorder. Altitude of gage is 1,717.42 ft (523.470 m), National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Nov. 22, 1948, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datum.

REMARKS.--Records fair. No regulation. Some diversions for irrigation above station.

AVERAGE DISCHARGE.--29 years, (water years 1949-77), 251 ft^3/s (7.108 m^3/s), 4.95 in/yr (126 mm/yr), 181,800 acre-ft/yr (224 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft^3/s (583 m^3/s) Feb. 3, 1963, gage height, 13.35 ft (4.069 m); minimum, April 1948 to September 1977, 1.4 ft^3/s (0.040 m^3/s) Sept. 6, 7, 9, 10, 14-17, 1973, gage height, 1.47 ft (0.448 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft^3/s (70.8 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 6	2100	*4,480	127	*7.55	2.301

Minimum discharge, not determined.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	50	25	143	473	212	312	105	29		---
2		---	51	28	155	366	506	252	96	30		---
3		---	93	35	279	248	430	215	86	39		---
4		---	132	45	1280	259	395	187	75	81		---
5		---	86	68	1200	267	636	174	68	93		---
6		---	64	200	2850	395	549	161	68	71		---
7		---	55	250	2620	462	410	143	52	66		---
8		---	64	450	2950	661	348	129	50	57		---
9		---	109	1300	1650	1460	304	119	46	45		---
10		---	161	1100	1230	881	256	114	43	35		---
11		---	149	640	886	642	230	114	41	30		---
12		---	595	408	549	642	197	114	39	28		---
13		---	586	317	357	595	177	109	45	27		---
14		---	2210	312	348	705	167	114	43	26		---
15		---	1350	555	317	522	161	291	42	23		22
16		---	1030	566	312	451	158	959	40	24		---
17		---	592	583	287	400	204	1020	36	23		---
18		---	415	624	259	352	233	560	33	22		---
19		---	320	630	271	321	174	381	29	22		---
20		---	230	500	326	308	164	287	28	21		---
21		---	190	478	357	296	190	230	27	---		---
22		---	150	595	330	287	164	187	25	---		---
23		---	125	436	312	275	143	164	25	---		---
24		---	110	300	312	283	140	152	24	---		---
25		22	90	237	300	300	137	152	26	---		---
26		673	74	204	405	263	124	152	26	---		---
27		263	64	201	500	241	117	135	26	---		---
28		132	55	174	446	215	291	538	28	---		---
29		81	45	170	---	204	698	244	29	---		---
30		57	35	155	---	190	480	152	28	---		---
31		---	38	135	---	194	---	122	---	---		---
TOTAL	---	---	9310	11705	21231	13158	8315	7983	1320	---	---	---
MEAN	---	---	300	378	758	424	277	258	44.0	---	---	---
MAX	---	---	2210	1300	2950	1460	698	1020	105	---	---	---
MIN	---	---	38	25	143	190	117	109	24	---	---	---
AC-FT	---	---	18470	23220	42110	26100	16490	15830	2620	---	---	---

12424003 HANGMAN CREEK AT MOUTH AT SPOKANE, WA

LOCATION.--Lat 47°39'17", long 117°27'12", on west line of NW¼ sec.24, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010306, at bridge on Riverside Avenue at west edge of Spokane and 0.6 mi (1.0 km) upstream from mouth.

DRAINAGE AREA.--689 mi^2 (1,785 km^2), approximately.

PERIOD OF RECORD.--Water years 1973, 1977 to current year.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)
OCT , 1977								
25...	0845	E9.0	--	6.2	8.9	--	16	--
NOV								
16...	0830	E12	310	7.1	3.3	--	60	--
DEC								
07...	1445	73	245	7.2	1.0	--	65	--
JAN , 1978								
10...	1410	E1100	145	7.1	1.5	65	220	13.2
FEB								
08...	0845	3160	110	7.5	2.5	25	90	13.3
21...	1600	365	205	7.7	4.6	170	50	12.5
MAR								
28...	1545	308	172	7.8	11.1	85	25	10.1
APR								
25...	1545	135	269	8.7	14.1	45	10	10.5
MAY								
10...	0930	114	125	7.4	12.4	40	65	10.0
11...	1130	114	184	--	13.7	--	--	--
11...	1140	114	183	--	14.0	--	--	--
JUN								
07...	0845	55	210	8.4	19.0	10	18	8.9
JUL								
12...	0915	28	270	8.1	17.4	55	220	9.3
AUG								
09...	0900	E10	250	7.7	18.6	15	170	9.0
SEP								
13...	0850	E19	360	8.1	14.3	20	40	9.8

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977								
25...	--	--	--	1.0	.08	.09	.00	.00
NOV								
16...	--	--	--	--	.07	.09	.04	.12
DEC								
07...	--	--	--	1.5	.13	.44	.11	.34
JAN , 1978								
10...	--	--	--	5.5	.43	.55	.04	.12
FEB								
08...	--	--	--	5.7	.40	.80	.09	.28
21...	--	--	--	6.2	.16	.24	.10	.31
MAR								
28...	--	--	--	3.2	.22	.14	.07	.21
APR								
25...	--	--	--	1.2	.08	.06	.02	.06
MAY								
10...	--	--	--	.39	.20	.14	.07	.21
11...	3.0	.25	.01	--	.07	--	.03	.09
11...	2.9	.26	.01	--	.07	--	.03	.09
JUN								
07...	--	--	--	1.0	.05	.22	.11	.34
JUL								
12...	--	--	--	1.2	.02	.60	.18	.55
AUG								
09...	--	--	--	1.3	.15	.08	.05	.15
SEP								
13...	--	--	--	.89	.13	.10	.03	.09

12424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA
(National Water Quality Surveillance System)

LOCATION.--Lat 47°41'48", long 117°29'48", in SE¼NE¼ sec.4, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010307, at Riverside State Park on west edge of Spokane, and at mile 66.1 (106.4 km).

DRAINAGE AREA.--5,010 mi² (12,980 km²), approximately.

PERIOD OF RECORD.--Water years 1973 to current year.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	CLOUD COVER (PER-CENT)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT , 1977												
19...	1200	1930	147	7.5	11.5	20	0	10.3	15	3	63	9
NOV												
30...	1300	3150	116	7.8	6.6	100	5	11.6	42	880	48	8
JAN , 1978												
02...	1300	6760	96	7.8	1.6	5	1	13.4	50	58	48	16
FEB												
07...	1415	7060	117	7.4	4.2	100	30	12.9	31	K100	46	13
MAR												
10...	1245	7970	89	7.6	4.2	80	20	13.4	9	21	41	12
APR												
06...	1500	22400	67	7.8	4.8	100	4	15.1	8	23	29	7
MAY												
02...	1530	14700	64	7.5	9.0	90	4	12.6	13	110	34	10
11...	1430	13100	67	--	11.4	--	--	--	--	--	--	--
23...	1115	10100	55	7.8	10.8	70	2	12.2	27	48	30	7
JUN												
22...	0900	5130	90	7.6	17.0	10	2	7.2	5	44	44	6
AUG												
01...	1030	1400	173	8.0	18.6	35	4	8.6	49	2	78	14
24...	1415	2210	127	8.4	16.9	75	1	9.3	46	17	56	6
SEP												
12...	1145	2150	132	7.9	15.2	100	1	9.2	3	29	57	8

DATE	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	MAGNE-SIUM, SUS-PENDED TOTAL (MG/L AS MG)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)
OCT , 1977												
19...	--	16	--	--	5.7	--	4.2	--	1.3	66	0	54
NOV												
30...	--	12	--	--	4.4	--	3.0	--	1.2	49	0	40
JAN , 1978												
02...	--	13	--	--	3.7	--	2.2	--	1.0	39	0	32
FEB												
07...	--	12	--	--	3.9	--	4.0	--	3.5	40	0	33
MAR												
10...	9.0	11	3.6	--	3.2	2.9	2.5	1.5	1.0	35	0	29
APR												
06...	--	7.7	--	--	2.3	--	1.5	--	.9	26	0	21
MAY												
02...	--	7.9	--	--	3.4	--	1.6	--	.8	29	0	24
11...	--	--	--	--	--	--	--	--	--	--	--	--
23...	9.6	8.7	19	17	2.0	2.1	1.9	.8	.7	28	0	23
JUN												
22...	11	11	3.9	.0	3.9	2.7	2.4	.8	.9	46	0	38
AUG												
01...	--	19	--	--	7.5	--	4.3	--	1.4	78	0	64
24...	--	14	--	--	5.2	--	3.7	--	1.2	61	0	50
SEP												
12...	17	14	5.1	.0	5.4	4.3	3.7	1.2	1.3	60	0	49

12424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA--Continued

WATER QUALITY DATA

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)
OCT , 1977												
19...	3.3	12	3.7	7.0	75	83	391	1	.36	.13	.29	.42
NOV												
30...	1.2	13	2.4	7.4	70	68	595	3	.30	.26	.69	.95
JAN , 1978												
02...	1.0	16	1.2	7.5	55	64	1000	21	.16	.02	.24	.26
FEB												
07...	2.5	12	4.3	13	90	72	1720	810	2.1	.28	1.1	1.4
MAR												
10...	1.4	12	1.5	9.4	51	58	1100	37	.68	.23	.25	.48
APR												
06...	.7	10	.9	9.8	45	46	2720	7	.16	.07	.22	.29
MAY												
02...	1.5	7.8	1.2	10	46	47	1830	11	.04	.08	.20	.28
11...	--	--	1.2	--	--	--	--	--	--	.08	--	--
23...	.7	8.1	.8	9.2	43	45	2100	8	.04	.06	.17	.23
JUN												
22...	1.8	9.8	2.7	8.2	62	62	859	20	.22	.05	.18	.23
AUG												
01...	1.2	13	3.8	9.5	105	97	397	3	.60	.06	.21	.27
24...	.4	11	2.9	8.8	75	77	448	7	.01	.13	.16	.29
SEP												
12...	1.2	11	3.2	9.4	77	78	447	4	.44	.08	--	--

DATE	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)
OCT , 1977												
19...	.78	.19	.13	.40	--	1	0	--	0	--	0	--
NOV												
30...	1.2	.36	.10	.31	--	1	400	--	1	--	0	--
JAN , 1978												
02...	.42	.04	.03	.09	--	1	0	--	1	--	0	--
FEB												
07...	3.5	.52	.08	.25	--	2	0	--	1	--	0	--
MAR												
10...	1.2	.08	.02	.06	1	--	--	0	--	10	--	10
APR												
06...	.45	.04	.00	.00	--	1	0	--	2	--	0	--
MAY												
02...	.32	.04	.00	.00	--	1	0	--	0	--	0	--
11...	--	--	.00	.00	--	--	--	--	--	--	--	--
23...	.27	.02	.00	.00	1	--	--	3	--	5	--	0
JUN												
22...	.45	.02	.00	.00	1	--	--	2	--	5	--	5
AUG												
01...	.87	.02	.01	.03	--	2	20	--	6	--	10	--
24...	.30	.02	.01	.03	--	2	20	--	<1	--	0	--
SEP												
12...	--	.04	.02	.06	2	--	--	8	--	10	--	19

DATE	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT , 1977											
19...	2	--	--	1	.0	--	0	0	--	100	1.3
NOV											
30...	1	--	--	1	.0	--	0	0	--	100	4.6
JAN , 1978											
02...	2	--	--	2	--	--	0	0	--	170	1.0
FEB											
07...	10	--	--	0	.0	--	0	0	--	50	13
MAR											
10...	--	1700	23	--	.0	0	--	--	190	--	3.7
APR											
06...	2	--	--	0	.0	--	0	0	--	210	3.0
MAY											
02...	3	--	--	0	.5	--	0	0	--	150	3.2
11...	--	--	--	--	--	--	--	--	--	--	--
23...	--	300	15	--	.1	0	--	--	160	--	2.4
JUN											
22...	--	240	28	--	.3	0	--	--	80	--	1.5
AUG											
01...	4	--	--	5	.1	--	0	0	--	50	1.8
24...	5	--	--	3	.2	--	0	0	--	40	1.7
SEP											
12...	--	160	77	--	.1	0	--	--	80	--	1.6

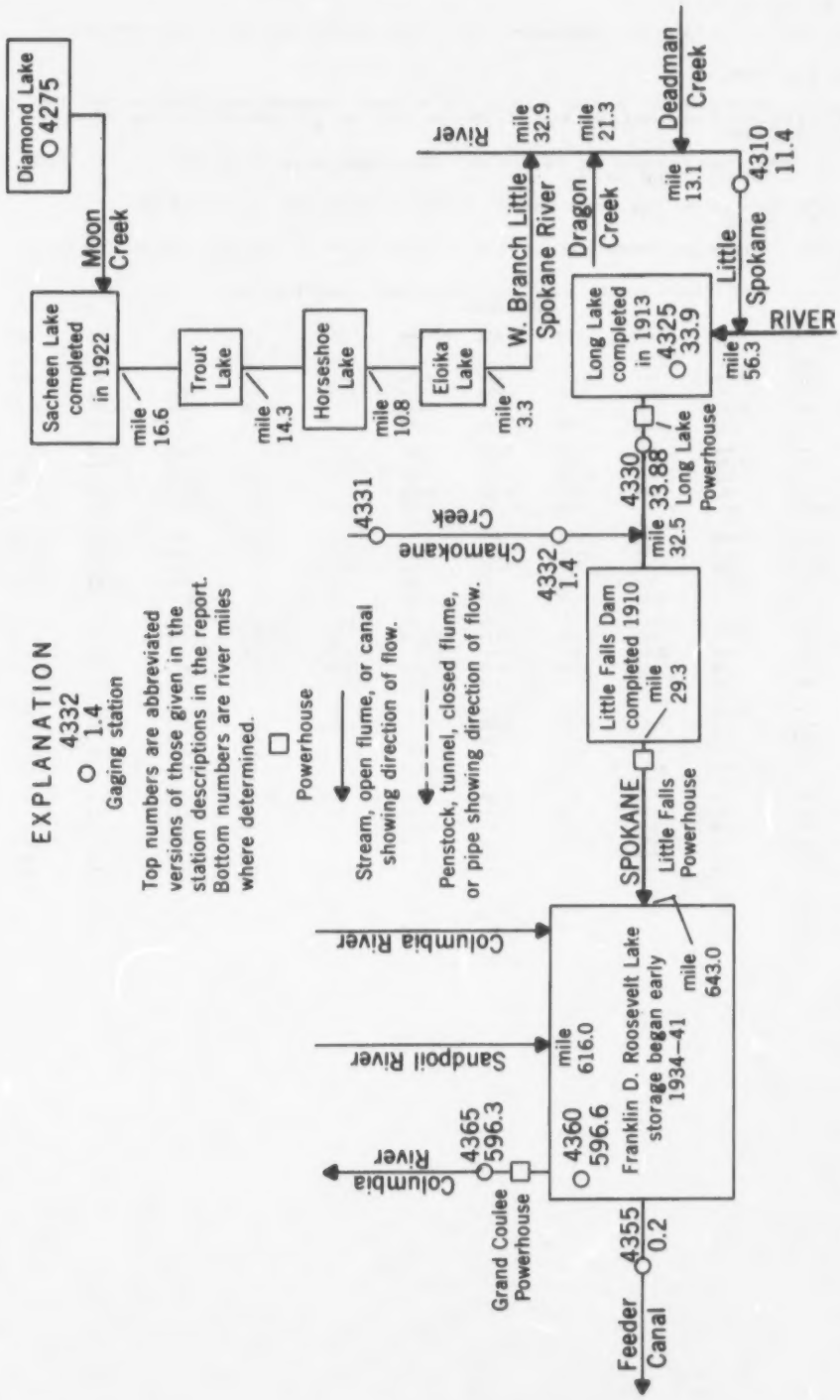

Figure 9. Gaging stations in Spokane River basin from Little Spokane River downstream and at Grand Coulee Dam.

12427500 DIAMOND LAKE NEAR NEWPORT, WA

LOCATION.--Lat 48°07'59", long 117°12'03", in SE¼NW¼ sec.2, T.30 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010308, on north shore at Boy Scouts of America Camp Cowles, 8 mi (13 km) southwest of Newport.

DRAINAGE AREA.--17.4 mi^2 (45.1 km^2).

PERIOD OF RECORD.-July 1953 to September 1978 (fragmentary) discontinued, chemical analyses October 1971 to September 1972.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Altitude of gage is about 2,340 ft (713 m), from topographic map. Prior to Sept. 9, 1961, nonrecording gage on southeast shore, and Sept. 9, 1961, to Sept. 20, 1967, nonrecording gage 500 ft (152 m) downlake, at same datum.

REMARKS.--No known regulation. Some diversion for domestic use. Gage heights to top of ice Jan. 1, 4, 13, 15, 18, 22, 25, 29, Feb. 12, 15, 19, 22, 27, and Mar. 6.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 4.95 ft (1.509 m), Feb. 25, 1958; minimum observed, 2.47 ft (0.753 m) Oct. 4, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 4.49 ft (1.369 m), May 18; minimum observed, 2.58 ft (0.786 m) Oct. 19.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	3.68	---	4.16	---	---	---	---	---	---
2	2.67	---	2.85	---	3.94	---	4.34	---	---	---	---	---
3	---	---	---	---	3.96	---	---	4.38	---	3.90	---	---
4	---	---	2.85	3.70	---	---	---	---	4.36	---	3.56	3.46
5	2.67	---	---	---	3.96	---	4.44	---	---	---	---	---
6	---	---	---	---	---	4.18	---	---	---	3.92	3.46	---
7	2.67	---	2.85	---	---	---	---	4.36	---	---	---	---
8	---	---	---	---	4.06	---	---	---	---	---	---	3.54
9	2.65	---	---	---	---	4.16	4.46	---	---	3.94	---	---
10	---	2.60	---	---	---	---	---	4.42	---	---	---	---
11	---	---	3.04	---	---	---	---	---	4.26	---	3.40	3.50
12	2.63	---	---	---	4.10	---	4.40	---	---	3.86	---	3.50
13	---	2.60	---	3.86	---	4.18	---	---	---	3.83	---	---
14	---	---	3.12	---	---	---	---	---	---	---	3.48	3.46
15	---	---	---	3.86	4.12	4.18	---	---	---	---	---	---
16	2.61	2.60	3.52	---	---	---	---	4.44	4.26	---	---	---
17	---	---	---	---	---	---	4.40	---	---	3.80	---	3.42
18	---	---	---	3.88	---	---	---	4.49	4.24	---	3.52	---
19	2.58	---	3.56	---	4.06	4.20	4.40	---	---	---	---	---
20	---	2.66	---	---	---	---	---	---	---	---	---	---
21	---	---	3.58	---	---	---	---	---	---	3.73	3.52	3.50
22	---	---	---	3.88	4.06	4.20	---	4.46	---	---	---	---
23	---	2.66	---	---	---	4.22	4.38	---	---	3.74	---	---
24	---	---	---	---	---	---	---	---	---	---	3.56	3.42
25	---	---	3.62	3.88	---	---	---	4.46	---	---	---	---
26	---	---	---	---	---	4.28	---	---	4.02	---	---	---
27	---	2.72	---	---	4.06	---	---	---	---	3.64	---	---
28	---	---	3.78	---	---	---	4.40	4.46	---	---	3.50	---
29	---	---	---	3.92	---	4.32	---	---	3.97	---	---	3.40
30	---	2.72	---	---	---	---	4.40	---	---	3.64	3.46	---
31	---	---	---	---	---	---	---	4.40	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

12431000 LITTLE SPOKANE RIVER AT DARTFORD, WA

LOCATION.--Lat 47°47'05", long 117°24'12", in NE¼NW¼ sec.5, T.26 N., R.43 E., Spokane County, Hydrologic Unit 17010308, on left bank 50 ft (15 m) upstream from county bridge, 0.5 mi (0.8 km) east of Dartford, 1.7 mi (2.7 km) downstream from Deadman Creek, 7.5 mi (12.1 km) north of Spokane, and at mile 11.4 (18.3 km).

DRAINAGE AREA.--665 mi^2 (1,722 km^2).

PERIOD OF RECORD.--April 1929 to September 1932, December 1946 to current year, chemical analyses July 1960 to September 1970, water temperatures July 1968 to September 1970.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1930, 1932(M), 1947-49(M). WSP 1446: 1951(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,590 ft (485 m), from topographic map. Prior to Mar. 16, 1951, nonrecording gage and Mar. 16, 1951, to July 5, 1961, water-stage recorder, at site 0.5 mi (0.8 km) downstream at different datum.

REMARKS.--Records excellent. No regulation. Small diversions for irrigation above station.

AVERAGE DISCHARGE.--34 years (water years 1930-32, 1948-78), 315 ft^3/s (8.921 m^3/s), 6.43 in/yr (163 mm/yr), 228,200 acre-ft/yr (281 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,170 ft^3/s (89.8 m^3/s) Feb. 17, 1970, gage height, 7.29 ft (2.222 m); minimum observed, 63 ft^3/s (1.78 m^3/s) July 24, 1930, gage height, 1.07 ft (0.326 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,120 ft^3/s (31.7 m^3/s) Dec. 14, gage height, 4.67 ft (1.423 m); minimum, 79 ft^3/s (2.24 m^3/s) Nov. 20, gage height, 1.61 ft (0.491 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	148	180	190	202	359	613	398	298	170	127	146
2	124	153	180	205	200	312	740	384	290	174	125	146
3	122	150	226	220	209	292	791	374	280	170	123	143
4	122	144	211	235	215	308	745	368	270	172	123	139
5	124	143	191	250	223	305	834	365	265	180	123	138
6	124	144	184	220	261	305	884	353	255	174	121	143
7	124	146	182	208	408	310	885	341	248	168	120	148
8	122	144	168	208	589	374	740	332	240	170	118	166
9	122	148	152	225	697	432	693	324	233	164	117	174
10	122	150	140	228	561	446	657	329	226	159	116	159
11	122	153	186	227	464	436	625	318	221	159	116	159
12	122	153	208	222	387	450	588	311	216	157	117	157
13	124	157	308	216	335	471	557	316	231	153	121	157
14	124	162	905	215	335	471	533	356	235	148	122	157
15	124	166	875	216	318	426	513	436	223	144	134	155
16	124	161	657	216	305	404	509	529	218	148	238	153
17	124	155	387	218	288	404	513	525	213	161	185	151
18	124	153	320	221	282	418	478	461	207	159	159	151
19	124	146	288	225	278	436	454	426	200	155	151	150
20	124	124	238	224	292	450	471	401	195	150	146	150
21	122	138	220	222	320	454	468	384	189	148	146	150
22	122	146	215	229	329	468	433	365	183	144	144	155
23	124	146	210	227	350	482	422	350	178	142	148	153
24	126	148	205	223	365	553	412	356	176	139	144	151
25	127	157	205	221	347	577	398	388	183	136	141	151
26	127	172	200	215	344	585	384	356	183	133	139	150
27	127	207	200	213	365	577	377	338	176	134	139	148
28	127	200	195	209	371	585	419	347	172	133	138	146
29	132	195	195	207	---	617	443	347	176	132	136	146
30	141	191	195	204	---	605	419	324	185	130	136	146
31	148	---	195	200	---	592	---	311	---	128	139	---
TOTAL	3892	4700	8461	6759	9640	13904	16918	11513	6565	4734	4252	4538
MEAN	126	157	273	218	344	449	564	371	219	153	137	151
MAX	148	207	905	250	697	617	884	529	298	180	238	174
MIN	122	124	152	190	200	292	377	311	172	128	116	138
CFSM	.19	.24	.41	.33	.52	.68	.85	.56	.33	.23	.21	.23
IN.	.22	.26	.47	.38	.54	.78	.95	.64	.37	.26	.24	.25
AC-FT	7720	9320	16780	13410	19120	27580	33560	22840	13020	9390	8430	9000

CAL YR 1977 TOTAL 57904 MEAN 159 MAX 905 MIN 92 CFSM .24 IN 3.24 AC-FT 114900
WTR YR 1978 TOTAL 95876 MEAN 263 MAX 905 MIN 116 CFSM .40 IN 5.36 AC-FT 190200

12431900 LITTLE SPOKANE RIVER NEAR MOUTH, NEAR SPOKANE, WA

LOCATION.--Lat 47°47'00", long 117°31'44", in SE¼NW¼ sec.5, T.26 N., R.42 E., Spokane County, Hydrologic Unit 17010308, at Tumtum Road bridge, 5.3 mi (8.5 km) northwest of Spokane and at mile 1.1 (1.8 km).

DRAINAGE AREA.--700 mi^2 (1,813 km^2).

PERIOD OF RECORD.--Water years 1971, 1973, 1977 to current year.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is fair.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT , 1977										
25...	0945	390	--	6.8	9.7	--	22	--	150	19
NOV										
16...	0930	431	285	7.3	6.5	--	15	--	130	19
DEC										
07...	1521	E459	280	7.1	6.2	--	30	--	130	19
JAN , 1978										
10...	1445	524	250	7.1	5.0	40	100	12.0	130	12
FEB										
08...	0930	888	210	7.6	4.6	30	110	12.0	100	10
MAR										
08...	0845	622	205	7.7	6.9	30	11	11.4	120	--
APR										
12...	1100	937	245	8.2	9.8	30	14	10.6	91	9
MAY										
10...	1000	650	230	7.6	12.4	25	30	9.9	100	5
11...	0835	643	235	--	12.1	--	--	--	--	--
JUN										
07...	0815	544	205	8.8	15.0	15	10	9.4	110	6
JUL										
12...	1000	422	220	8.6	17.0	10	35	9.7	130	14
AUG										
09...	0945	368	230	7.8	14.6	35	105	10.0	140	15
SEP										
13...	0940	426	300	7.8	13.5	20	25	10.0	130	19

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)
OCT , 1977										
25...	34	15	4.4	6	.2	2.2	160	0	131	41
NOV										
16...	32	13	4.8	7	.2	2.5	140	0	110	11
DEC										
07...	32	13	4.6	7	.2	2.3	140	0	110	18
JAN , 1978										
10...	31	12	5.1	8	.2	2.2	140	0	110	18
FEB										
08...	26	9.2	5.5	10	.2	2.6	110	0	90	4.4
MAR										
08...	30	11	5.3	9	.2	2.4	--	--	--	--
APR										
12...	23	8.1	4.3	9	.2	2.0	100	0	82	1.0
MAY										
10...	25	10	4.8	9	.2	2.0	120	0	98	4.8
11...	--	--	--	--	--	--	--	--	--	--
JUN										
07...	27	11	4.8	8	.2	1.9	130	0	110	.3
JUL										
12...	30	13	4.5	7	.2	2.0	140	0	110	.6
AUG										
09...	32	14	5.2	7	.2	2.2	150	0	120	3.8
SEP										
13...	32	13	5.3	8	.2	2.2	140	0	110	3.6

12431900 LITTLE SPOKANE RIVER NEAR MOUTH, NEAR SPOKANE, WA--Continued

WATER QUALITY DATA

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977									
25...	15	3.4	--	--	1.2	.02	.02	.00	.00
NOV									
16...	16	3.8	--	--	--	.04	.04	.01	.03
DEC									
07...	12	3.5	--	--	1.1	.05	.03	.02	.06
JAN , 1978									
10...	13	3.1	--	--	1.1	.06	.04	.02	.06
FEB									
08...	12	3.4	--	--	1.2	.15	.13	.09	.28
MAR									
08...	13	3.6	--	--	1.1	.08	.04	.02	.06
APR									
12...	9.6	2.6	--	--	3.0	.06	.06	.02	.06
MAY									
10...	12	3.3	--	--	.40	.08	.05	.02	.06
11...	--	3.3	.78	.01	--	.07	--	.03	.09
JUN									
07...	10	2.9	--	--	.83	.04	.04	.02	.06
JUL									
12...	12	3.2	--	--	.99	.03	.02	.02	.06
AUG									
09...	22	3.0	--	--	1.0	.04	.05	.04	.12
SEP									
13...	18	3.3	--	--	1.1	.03	.03	.02	.06

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	LEAD, DIS-SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT , 1977									
25...	4	1	8	3	25	.0	0	0	10
NOV									
16...	1	0	0	0	22	.0	0	0	10
DEC									
07...	3	1	0	0	25	.0	0	0	0
JAN , 1978									
10...	3	0	0	4	25	.0	0	0	10
FEB									
08...	3	0	0	2	20	.0	0	1	0
MAR									
08...	4	0	0	0	20	.0	0	0	0
APR									
12...	2	0	0	1	4	.0	0	0	0
MAY									
10...	3	1	10	1	12	.0	0	0	5
11...	--	--	--	--	--	--	--	--	--
JUN									
07...	4	0	0	1	6	.1	0	0	5
JUL									
12...	3	5	0	3	5	.1	0	0	<3
AUG									
09...	0	0	0	0	9	.0	0	0	10
SEP									
13...	4	<1	0	0	5	.4	1	0	<3

12432500 LONG LAKE AT LONG LAKE, WA

LOCATION.--Lat 47°50'12", long 117°50'20", in NW¼SW¼ sec.13, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, at left end of spillway at Long Lake Dam on Spokane River, 12 mi (19 km) north of Reardon and at mile 33.9 (54.5 km).

DRAINAGE AREA.--6,020 mi^2 (15,600 km^2), approximately.

PERIOD OF RECORD.--October 1913 to current year. Prior to October 1950 monthend contents only, published in WSP 1316.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder with remote indicator in powerhouse. Datum of gage is at mean sea level (levels by Washington Water Power Co.).

REMARKS.--Reservoir is formed by concrete dam, completed in 1913 and raised in 1950. Capacity, 104,200 acre-ft (128 hm^3) between elevations 1,512 ft (460.9 m) and 1,536 ft (468.2 m), normal limits of operation. Contents at elevation 1,512 ft (460.9 m) by capacity table used prior to October 1915, 148,600 acre-ft (183 hm^3). Records given herein represent usable contents. Water used for power. About 25,000 acres (100 km^2) irrigated above station, largely from wells in the Spokane Valley. Flow regulated by Coeur d'Alene Lake (see sta 12415500) and powerplants along Spokane River.

COOPERATION.--Lake elevations and capacity table furnished by Washington Water Power Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 107,600 acre-ft (133 hm^3) Jan. 16, 1974, elevation, 1,536.67 ft (468.377 m); minimum, since filling reservoir in 1920, 5,400 acre-ft (6.66 hm^3) Mar. 8, 1966, elevation, 1,513.50 ft (461.315 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 104,362 acre-ft (129 hm^3) July 24, elevation, 1,536.03 ft (468.182 m); 88,199 acre-ft (109 hm^3) Dec. 19, elevation, 1,532.76 ft (467.76 ft (467.185 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,535.64	102,405	-----
Oct. 31	1,535.60	102,204	-201
Nov. 30	1,535.62	102,305	+101
Dec. 31	1,535.58	102,104	-201
CAL YR 1977	----	----	+899
Jan. 31	1,535.38	101,100	-1,004
Feb. 28	1,535.81	103,258	+2,158
Mar. 31	1,534.84	98,400	-4,858
Apr. 30	1,535.53	101,853	+3,453
May 31	1,535.31	100,749	-1,104
June 30	1,535.58	102,104	+1,355
July 31	1,535.46	101,502	-602
Aug. 31	1,535.65	102,455	+953
Sept. 30	1,535.80	103,208	+753
WTR YR 1978	----	----	+803

12433000 SPOKANE RIVER AT LONG LAKE, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 47°50'12", long 117°50'25", in NW¼SW¼ sec.13, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, on left bank at Long Lake powerhouse, 1.4 mi (2.3 km) upstream from Chamokane Creek, 12 mi (19 km) north of Reardon, and at mile 33.88 (54.51 km).

DRAINAGE AREA.--6,020 mi² (15,590 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,299.00 ft (395.935 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water discharge records good. Flow regulated by Coeur d'Alene Lake (see sta 12415500) and Long Lake (see sta 12432500) for powerplants of Washington Water Power Co. About 25,000 acres (100 km²) irrigated above station, largely from wells in the Spokane Valley.

COOPERATION.--Discharge records furnished by Washington Water Power Co.; three discharge measurements made by Geological Survey.

AVERAGE DISCHARGE.--39 years, 8,042 ft³/s (227.7 m³/s) 5,826,000 acre-ft/yr (7,180 hm³), adjusted for storage in Long Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,700 ft³/s (1,410 m³/s) Jan. 19, 1974, gage height, 78.40 ft (23,896 m); maximum recorded gage height, 78.66 ft (23.976 m) May 24, 1948; minimum daily discharge, 114 ft³/s (3.23 m³/s) Sept. 2, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26,500 ft³/s (750 m³/s) Apr. 6, gage height, 70.50 ft (21.488 m); minimum daily, 1,470 ft³/s (41.6 m³/s) Aug. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2410	2930	4290	7010	7060	7780	19400	14900	14500	5190	1880	2580
2	2420	2890	5620	7040	7040	7490	22300	15700	14200	5080	1550	2900
3	3110	2820	7030	6980	7070	7040	23000	15500	14200	5260	1670	2710
4	2750	2330	13400	6860	7120	7100	23100	15500	13900	5290	1930	2608
5	2330	2320	16000	6960	7180	7180	23700	15300	13100	5090	1530	3060
6	2510	2350	16200	8010	8290	7130	24500	15300	13500	5280	1590	3040
7	2900	2530	16400	7290	8710	7140	21600	15400	11300	5280	2150	2540
8	2720	2920	10700	7480	8730	7550	21500	15200	11900	5590	2550	2950
9	1700	3540	7420	7190	10800	8370	20900	14000	8060	5950	2430	2880
10	2910	3500	7860	7290	10600	9820	20800	13900	6530	4900	1480	3380
11	2770	3510	10100	7210	10200	9880	19400	14200	7390	4560	1470	2390
12	2400	2540	13100	7050	11100	9100	17000	13900	7000	4540	1730	3050
13	2540	2960	15500	7080	9290	8870	17100	14400	6610	4190	1900	2910
14	2770	3240	20400	7020	9410	9920	17400	15200	6940	3960	1910	2340
15	2360	3180	21700	7150	9480	9900	16300	14800	7370	3220	2340	3030
16	2490	3550	22200	7070	9300	9880	15900	16100	7110	2610	2730	2400
17	2680	3130	22200	7160	9210	9580	15300	19000	7070	2860	2770	2670
18	2480	2930	21300	7140	8090	9300	15300	18700	6960	2800	2770	3070
19	2870	2850	18500	7080	7630	9440	12600	18200	6680	2820	3150	2520
20	2860	3170	16700	7070	7570	10600	13000	18400	6390	2490	3650	3360
21	2680	3500	16200	7060	7170	12200	13200	18900	6110	2970	2880	2710
22	2500	3220	15900	7120	7100	10700	13000	18600	5960	3390	2870	2350
23	2860	2800	14100	7040	7120	11900	13000	18400	5800	2550	2900	2570
24	2800	2860	12400	7000	7090	12900	12800	18800	5720	2950	2880	2920
25	2680	3750	11200	7010	7120	14400	12500	18200	5880	2740	3070	2960
26	2370	4700	8150	7060	7180	15700	12400	17800	5900	2950	2910	2880
27	2400	2850	7110	7050	7140	16100	12400	17800	5760	3100	2450	2890
28	2650	3000	6910	7090	7590	16900	12400	16200	5590	2670	2860	2730
29	2330	3360	7010	7210	---	17400	14400	16000	5240	2790	2940	2390
30	2270	3570	6990	7100	---	19800	14800	16400	5230	2160	3290	2580
31	2330	---	6960	7100	---	18700	---	15000	---	1790	2730	---
TOTAL	79850	92700	399550	220980	231390	339770	511000	505700	247820	117020	74960	83360
MEAN	2576	3090	12890	7128	8264	10960	17030	16310	8261	3775	2418	2779
MAX	3110	4700	22200	8010	11100	19800	24500	19000	14500	5950	3650	3380
MIN	1700	2320	4290	6860	7040	7040	12400	13900	5230	1790	1470	2340
AC-FT	158400	183900	792500	438300	459000	673900	1014000	1003000	491600	232100	148700	165300
†	-201	+101	-201	-1004	+2158	-4858	+3453	-1104	+1355	-602	+953	+753
MEAN‡	2573	3092	12890	7112	8303	10880	17100	16290	8284	3765	2434	2791
AC-FT‡	158199	184001	792299	437296	461158	669042	1017453	1001896	492955	231498	149653	166053

CAL YR 1977: TOTAL 1467940 MEAN 4002 MAX 22200 MIN 210 AC-FT 2912000
DO.....: MEAN‡ 4023 CFSM‡ 0.67 IN‡ 9.06 AC-FT‡ 2912499
WTR YR 1978: TOTAL 2904100 MEAN 7956 MAX 24500 MIN 1470 AC-FT 5760000
DO.....: MEAN‡ 7958 CFSM‡ 1.32 IN‡ 17.92 AC-FT‡ 5761503

† Change in contents, in acre-feet, in Long Lake.
‡ Adjusted for change in contents, in Long Lake.

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued
(National Stream-Quality Accounting Network Station)

WATER-QUALITY RECORDS

LOCATION.--Water Quality monitor 0.6 mi (1.0 km) downstream from discharge station.

PERIOD OF RECORD.--Water years 1959 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1973 to current year.
WATER TEMPERATURES: July 1959 to September 1962, October 1966 to September 1970, March 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since March 1973.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. In addition to the water-quality monitor record, samples were collected approximately twice a month.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance for half of the water-quality samples listed below furnished by Washington State Department of Ecology.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 235 micromhos Sept. 8, 1973; minimum, 50 micromhos May 19, 1976.
WATER TEMPERATURES: Maximum, 24.5°C Aug. 18, 1959; minimum, 0.0°C Jan. 21, Feb. 26, 1960.

EXTREMES OUTSIDE PERIOD OF DAILY RECORD.--Specific conductance: Maximum, 238 micromhos Oct. 2-3, 1961.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 189 micromhos Nov. 13; minimum recorded, 69 micromhos Apr. 9, 10, 12-15, 17, 18.
WATER TEMPERATURES: Maximum, 21.0°C July 25, Aug. 2-5, 8, 9; minimum, 2.5°C Jan. 10-13.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT , 1977												
20...	1200	3990	181	7.2	12.4	2	--	6.0	<1	4	84	11
NOV												
30...	1000	3800	179	7.4	6.0	2	--	9.5	4	4	84	11
JAN , 1978												
02...	1000	7100	83	7.4	3.4	4	--	12.8	28	28	37	12
FEB												
07...	1015	8450	121	7.4	3.6	3	--	9.0	<1	6	54	12
MAR												
10...	0945	9500	112	7.4	4.2	4	--	12.7	2	1	54	11
APR												
06...	1145	23300	72	7.8	5.5	4	--	14.9	K130	29	34	10
MAY												
02...	1200	15700	78	7.8	8.7	3	--	13.0	36	30	40	7
22...	1245	18400	77	7.8	11.7	--	5.9	11.9	43	360	34	5
JUN												
21...	1300	5990	100	7.4	17.2	--	1.0	10.4	2	K1360	44	5
AUG												
01...	0815	1460	138	7.8	19.5	--	.60	6.9	<1	1	61	11
21...	1250	3920	150	7.8	18.9	--	1.1	6.0	<1	3	75	14
SEP												
15...	0945	5200	169	7.4	16.8	--	1.3	5.4	6	K27200	77	11

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT , 1977												
20...	21	7.6	3.9	9	.2	1.5	89	0	73	9.0	11	3.7
NOV												
30...	20	8.3	3.9	9	.2	1.5	89	0	73	5.7	13	3.1
JAN , 1978												
02...	10	3.0	1.8	9	.1	1.0	31	0	25	2.0	16	1.0
FEB												
07...	14	4.5	3.5	12	.2	1.2	51	0	42	3.2	11	2.3
MAR												
10...	14	4.5	2.9	10	.2	1.3	52	0	43	3.3	9.5	2.2
APR												
06...	9.3	2.6	1.6	9	.1	.9	29	0	24	.7	10	1.4
MAY												
02...	11	3.1	2.0	10	.1	1.0	40	0	33	1.0	6.5	1.3
22...	8.7	2.9	3.9	20	.3	.9	--	--	29	--	8.4	1.2
JUN												
21...	11	3.9	2.5	11	.2	.9	--	--	39	--	9.5	2.0
AUG												
01...	15	5.6	2.9	9	.2	1.3	--	--	50	--	12	2.3
21...	19	6.8	2.7	7	.1	1.3	--	--	61	--	11	2.5
SEP												
15...	19	7.2	3.7	9	.2	1.6	--	--	66	--	12	3.1

K Results based upon colony counts outside the ideal range.

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

WATER QUALITY DATA

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG, SUSP, TOTAL (MG/L AS N)
OCT , 1977												
20...	.1	7.1	100	100	.14	1080	2	.33	.24	--	--	--
NOV												
30...	.1	6.8	101	101	.14	1040	6	.52	.19	--	--	--
JAN , 1978												
02...	.1	7.5	52	56	.07	997	18	1.3	.08	--	--	--
FEB												
07...	.1	8.9	70	71	.10	1600	18	.44	.08	.37	.45	.35
MAR												
10...	.1	9.5	74	70	.10	1900	13	.55	.16	.70	.86	.66
APR												
06...	.1	9.6	49	50	.07	3080	5	.27	.00	.51	.51	.20
MAY												
02...	.0	9.7	58	54	.08	2460	12	.15	.00	2.4	2.4	2.2
22...	.1	9.3	49	82	.07	2430	11	.13	.00	--	--	--
JUN												
21...	.0	7.8	59	61	.08	954	15	.19	.01	.44	.45	.36
AUG												
01...	.1	8.4	83	78	.11	327	0	.43	.00	.70	.70	.40
21...	.1	7.9	89	80	.12	942	16	.41	.02	.25	.27	.02
SEP												
15...	.1	8.1	97	94	.13	1360	4	.45	.13	.24	.37	.00

DATE	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1977											
20...	.40	--	--	.11	.09	--	--	--	2	22	97
NOV											
30...	.29	--	--	.07	.04	1.7	--	--	11	113	58
JAN , 1978											
02...	.13	--	--	.03	.01	--	2.6	.6	6	115	93
FEB											
07...	.10	.89	3.9	.04	.03	2.2	--	--	5	114	99
MAR											
10...	.20	1.4	6.2	.09	.07	2.4	--	--	7	180	55
APR											
06...	.31	.78	3.5	.04	.02	--	2.5	--	8	503	98
MAY											
02...	.23	2.6	11	.02	.00	2.9	--	--	8	339	62
22...	.26	--	--	.03	.01	2.7	--	--	14	696	100
JUN											
21...	.09	.64	2.8	.03	.01	1.9	--	--	3	49	100
AUG											
01...	.30	1.1	5.0	.00	.00	--	1.5	.3	3	12	100
21...	.25	.68	3.0	.03	.01	1.5	--	--	5	53	--
SEP											
15...	.54	.82	3.6	.02	.01	2.4	--	--	5	70	95

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)
OCT , 1977										
20...	1200	3	2	1	700	700	0	<10	<10	0
JAN , 1978										
02...	1000	2	1	1	0	0	0	1	0	1
APR										
06...	1145	1	0	2	0	0	0	2	0	2
AUG										
01...	0815	2	0	2	100	70	30	1	0	1

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT , 1977										
20...	0	0	0	<50	<50	0	<10	<6	4	130
JAN , 1978										
02...	10	0	10	0	0	0	12	8	4	330
APR										
06...	20	20	0	1	0	1	8	4	4	380
AUG										
01...	10	10	0	0	0	0	7	4	3	110

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

WATER QUALITY DATA

DATE	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)
OCT, 1977										
20...	--	10	<100	<98	2	110	30	80	.0	.0
JAN, 1978										
02...	--	30	9	5	4	50	50	0	.0	.0
APR										
06...	--	60	17	14	3	40	20	20	.0	.0
AUG										
01...	100	<10	11	7	4	30	30	<1	.2	.2

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT, 1977										
20...	.0	0	0	0	<10	<10	0	30	20	10
JAN, 1978										
02...	.0	0	0	0	1	1	0	190	30	160
APR										
06...	.0	0	0	0	0	0	0	220	40	180
AUG										
01...	.0	0	0	0	0	0	0	60	30	30

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	AROCLOR TOTAL 1254 PCB SERIES (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL (UG/L)
NOV, 1977												
30...	1000	ND	--	ND	--	--	ND	ND	--	ND	--	ND
FEB, 1978												
07...	1015	--	--	ND	--	.2	ND	ND	--	ND	--	ND
MAY												
02...	1200	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND
AUG												
01...	0815	ND	--	ND	--	--	ND	ND	--	ND	--	ND

DATE	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR, TOTAL (UG/L)
NOV, 1977												
30...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND
FEB, 1978												
07...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND
MAY												
02...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG												
01...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI-THION, TOTAL (UG/L)
NOV, 1977												
30...	--	ND	--	.01	--	ND	--	ND	--	ND	--	ND
FEB, 1978												
07...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND
MAY												
02...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG												
01...	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND

ND None detected.

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

WATER QUALITY DATA

DATE	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA-THION, TOTAL (UG/L)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL COUL-SON COND. (UG/L)
NOV , 1977											
30...	--	ND	--	ND	--	ND	--	ND	ND	ND	ND
FEB , 1978											
07...	--	ND	--	ND	--	ND	--	ND	ND	ND	ND
MAY											
02...	ND	ND	ND	ND	ND	ND	ND	--	--	--	ND
AUG											
01...	--	ND	--	ND	--	ND	--	--	--	--	ND

ND None detected.

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
MAY , 1978							
22...	1245	<.6	.5	1.3	.7	.04	<.4

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JUNE 1978

DATE	NOV 30,77	MAR 10,78	MAY 2,78	MAY 22,78	JUN 21,78
TIME	1000	0945	1200	1245	1300
TOTAL CELLS/ML	1900	3600	1600	36000	5900
DIVERSITY: DIVISION	0.4	0.0	0.1	0.2	1.0
.CLASS	0.4	0.0	0.1	0.2	1.0
..ORDER	1.2	0.7	0.8	0.5	1.7
...FAMILY	1.7	0.9	0.8	0.6	2.0
....GENUS	2.0	0.9	0.9	0.6	2.1

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	--	-	--	-	*	0	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	*	0	--	-	14	1	310	1	*	0
...SCENEDESMACEAE										
....SCENEDESMUS	--	-	--	-	--	-	--	-	*	0
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CARTERIA	--	-	--	-	--	-	--	-	*	0
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-	46	1
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	14	1	*	0	14	1	*	0	--	-
....MELOSIRA	500#	26	2900#	82	1200#	76	34000#	92	3200#	54
..PENNALES										
...CYMBELLACEAE										
....CYMBELLA	--	-	*	0	--	-	*	0	--	-
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	46	1
...FRAGILARIACEAE										
....ASTERIONELLA	890#	47	530	15	370#	23	990	3	720	12
....FRAGILARIA	130	7	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	*	0	*	0
...NAVICULACEAE										
....NAVICULA	--	-	*	0	--	-	*	0	46	1
...NITZSCHIACEAE										
....NITZSCHIA	--	-	--	-	--	-	*	0	390	7
...TABELLARIACEAE										
....TABELLARIA	210	11	100	3	--	-	620	2	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCOCCALES										
...CHROCOCCACEAE										
....ANACYSTIS	--	-	--	-	--	-	--	-	190	3
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	160	8	--	-	--	-	--	-	1100#	19

SPOKANE RIVER BASIN

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO SEPTEMBER 1978--Continued

EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	--	-	*	0
....PHACUS	--	-	--	-	--	-	--	-	*	0
....TRACHELOMONAS	--	-	*	0	--	-	310	1	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%
Additional phytoplankton data available from district office in Tacoma.

DATE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUORON (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUORON (MG/M2)	LENGTH OF EXPO-SURE (DAYS)
MAY , 1978						
02...	1200	.079	.079	.010	.000	26

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C). WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	186	182	184	183	179	180	83	82	82
2	---	---	---	186	182	184	181	179	180	86	83	84
3	---	---	---	186	181	183	180	177	179	86	85	85
4	---	---	---	186	181	183	177	175	176	89	87	87
5	---	---	---	186	182	183	174	172	173	92	88	90
6	---	---	---	186	182	183	171	166	169	97	93	95
7	---	---	---	186	183	184	165	161	163	99	97	98
8	---	---	---	185	183	184	164	159	160	100	97	99
9	---	---	---	185	181	183	157	143	154	99	96	97
10	---	---	---	185	182	184	142	120	131	107	100	103
11	---	---	---	185	181	184	120	106	114	107	106	107
12	---	---	---	185	184	184	121	103	113	108	106	107
13	---	---	---	189	184	185	111	99	103	111	108	110
14	---	---	---	186	184	185	102	96	98	114	111	113
15	---	---	---	185	183	184	98	95	97	116	114	115
16	---	---	---	184	183	183	100	95	98	117	116	116
17	---	---	---	184	182	183	98	90	93	117	116	117
18	---	---	---	183	182	183	94	86	88	117	117	117
19	---	---	---	188	182	182	88	85	86	116	115	116
20	---	---	---	183	181	182	84	82	83	117	116	116
21	185	181	183	182	179	182	82	81	82	119	116	117
22	186	183	185	183	181	182	81	81	81	119	117	118
23	186	184	185	183	182	182	81	80	81	117	117	117
24	187	182	185	183	182	182	81	80	81	118	117	118
25	188	180	184	183	182	182	81	80	81	118	118	118
26	187	183	185	184	182	183	81	80	81	120	119	119
27	185	182	183	184	181	182	81	80	81	120	119	120
28	185	182	183	183	181	181	81	80	80	121	120	120
29	187	183	184	182	180	181	81	80	80	121	120	121
30	187	182	185	182	179	180	81	80	80	121	120	120
31	186	183	184	---	---	---	82	81	82	121	120	120
MONTH	188	180	184	189	179	183	183	80	114	121	82	108

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C). WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	122	121	121	104	103	103	81	78	79	79	76	78
2	121	120	121	104	103	103	78	75	77	78	76	77
3	123	121	122	107	104	106	77	75	76	78	76	77
4	121	120	121	108	107	108	76	72	73	78	77	77
5	121	121	121	110	108	109	73	71	72	77	76	77
6	122	121	121	110	109	110	73	71	72	76	75	76
7	121	120	121	113	109	111	73	70	71	76	74	75
8	120	118	120	114	112	113	72	70	71	77	74	75
9	118	116	117	114	112	113	72	69	70	83	74	75
10	116	114	115	112	111	112	73	69	71	75	73	74
11	119	115	116	112	111	112	72	70	71	74	73	73
12	119	117	118	114	111	112	72	69	70	75	73	74
13	119	118	118	112	111	111	72	69	70	75	74	74
14	120	119	119	112	110	111	72	69	71	76	75	76
15	122	120	121	112	111	111	72	69	71	77	76	77
16	120	119	119	112	110	111	71	70	70	78	77	78
17	118	116	117	112	110	111	72	69	71	80	78	79
18	116	114	115	113	109	111	73	69	71	81	78	79
19	114	104	111	110	107	109	75	71	73	81	78	79
20	109	108	108	109	105	107	74	72	73	81	78	80
21	108	107	108	106	103	104	74	71	73	81	78	80
22	107	107	107	104	100	102	74	70	72	79	77	78
23	107	105	106	100	97	99	74	71	73	77	76	77
24	106	105	105	101	98	99	78	72	75	76	75	76
25	105	104	105	100	98	99	78	76	77	76	75	75
26	105	104	104	100	97	98	79	77	78	75	74	75
27	105	103	104	97	94	96	78	76	77	75	73	74
28	104	103	103	94	90	92	77	76	77	75	72	73
29	---	---	---	91	87	89	79	75	77	75	72	73
30	---	---	---	87	82	84	79	75	77	---	---	---
31	---	---	---	89	80	82	---	---	---	---	---	---
MONTH	123	103	114	114	90	104	81	69	73	83	72	76

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	111	106	108	134	132	133	171	169	170
2	---	---	---	111	107	109	134	130	132	176	169	173
3	---	---	---	111	109	110	137	131	134	178	174	176
4	---	---	---	112	109	111	136	135	135	177	173	175
5	---	---	---	113	112	112	138	135	136	177	171	175
6	---	---	---	115	112	113	139	136	138	174	170	173
7	---	---	---	117	113	115	143	138	140	172	171	171
8	---	---	---	117	114	116	143	137	140	172	170	171
9	---	---	---	118	116	118	145	140	142	171	169	170
10	---	---	---	121	117	119	143	140	142	171	167	170
11	---	---	---	124	120	122	148	144	146	170	168	169
12	---	---	---	122	119	120	147	140	144	169	165	167
13	---	---	---	123	119	121	146	141	144	168	166	167
14	---	---	---	125	121	123	148	145	146	171	168	170
15	---	---	---	126	122	124	149	145	147	170	165	168
16	---	---	---	124	122	123	148	143	145	170	166	168
17	---	---	---	124	121	123	151	145	149	168	166	167
18	---	---	---	123	121	122	150	145	148	169	166	167
19	---	---	---	122	120	121	148	144	146	170	167	168
20	---	---	---	123	120	122	149	143	146	167	165	167
21	100	99	99	124	121	122	154	147	150	169	166	168
22	101	98	100	125	121	122	157	151	154	168	164	166
23	101	97	99	126	123	124	160	154	157	167	160	163
24	101	98	100	125	123	124	160	153	157	165	162	164
25	103	100	101	126	123	125	160	153	157	165	161	164
26	103	100	101	126	124	125	165	153	160	166	162	164
27	105	100	102	128	124	125	167	163	165	167	161	164
28	108	100	104	129	126	127	168	164	165	164	160	162
29	108	103	106	131	126	128	170	166	168	169	164	166
30	110	107	108	131	128	129	169	167	168	168	165	166
31	---	---	---	132	130	131	171	168	170	---	---	---
MONTH	110	97	102	132	106	120	171	130	149	178	160	168
YEAR	189	69	123									

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	11.5	11.0	11.0	6.0	6.0	6.0	3.5	3.5	3.5
2	---	---	---	11.5	11.0	11.0	6.0	6.0	6.0	3.5	3.0	3.5
3	---	---	---	11.0	10.5	11.0	6.0	6.0	6.0	3.5	3.0	3.0
4	---	---	---	11.0	10.5	10.5	6.0	5.5	5.5	3.5	3.0	3.5
5	---	---	---	10.5	10.5	10.5	5.5	5.0	5.5	3.5	3.0	3.5
6	---	---	---	10.5	10.5	10.5	5.0	4.5	5.0	3.0	3.0	3.0
7	---	---	---	10.5	10.5	10.5	4.5	4.5	4.5	3.0	3.0	3.0
8	---	---	---	10.5	10.0	10.0	4.5	4.0	4.5	3.0	3.0	3.0
9	---	---	---	10.0	10.0	10.0	4.5	4.5	4.5	3.0	3.0	3.0
10	---	---	---	10.0	10.0	10.0	4.5	4.5	4.5	3.0	2.5	2.5
11	---	---	---	10.0	9.5	10.0	5.0	4.5	4.5	2.5	2.5	2.5
12	---	---	---	9.5	9.5	9.5	5.0	5.0	5.0	3.0	2.5	2.5
13	---	---	---	9.5	9.5	9.5	5.0	5.0	5.0	3.0	2.5	3.0
14	---	---	---	9.5	9.0	9.5	5.0	5.0	5.0	3.0	3.0	3.0
15	---	---	---	9.0	9.0	9.0	5.0	4.5	5.0	3.0	3.0	3.0
16	---	---	---	9.0	9.0	9.0	5.0	4.5	5.0	3.0	3.0	3.0
17	---	---	---	9.0	8.5	8.5	5.5	5.0	5.0	3.0	3.0	3.0
18	---	---	---	8.5	8.5	8.5	5.5	5.5	5.5	3.0	3.0	3.0
19	---	---	---	8.5	8.0	8.5	5.5	5.0	5.5	3.5	3.0	3.5
20	---	---	---	8.0	8.0	8.0	5.0	5.0	5.0	3.5	3.5	3.5
21	12.5	12.0	12.5	7.5	7.5	7.5	5.0	5.0	5.0	3.5	3.0	3.5
22	12.5	12.0	12.5	7.5	7.5	7.5	5.0	5.0	5.0	3.5	3.0	3.5
23	12.5	12.5	12.5	7.5	7.0	7.0	5.0	5.0	5.0	3.5	3.5	3.5
24	12.5	12.0	12.0	7.0	7.0	7.0	5.0	4.5	4.5	3.5	3.5	3.5
25	12.5	12.0	12.0	7.0	7.0	7.0	4.5	4.5	4.5	3.5	3.5	3.5
26	12.0	11.5	12.0	7.0	6.5	7.0	4.5	4.0	4.0	4.0	3.5	3.5
27	12.0	11.5	11.5	6.5	6.5	6.5	4.0	4.0	4.0	4.0	3.5	4.0
28	11.5	11.5	11.5	6.5	6.5	6.5	4.0	3.5	4.0	4.0	4.0	4.0
29	12.0	11.5	11.5	6.5	6.0	6.5	4.0	3.5	3.5	4.0	4.0	4.0
30	11.5	11.5	11.5	6.0	6.0	6.0	4.0	3.5	4.0	4.0	4.0	4.0
31	11.5	11.0	11.5	---	---	---	4.0	3.5	3.5	4.0	4.0	4.0
MONTH	12.5	11.0	12.0	11.5	6.0	9.0	6.0	3.5	5.0	4.0	2.5	3.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	4.0	4.0	4.0	4.0	3.5	3.5	6.5	6.5	6.5	9.0	8.5	9.0
2	4.0	4.0	4.0	3.5	3.5	3.5	6.5	6.0	6.5	9.0	8.5	9.0
3	4.0	4.0	4.0	4.0	3.5	3.5	6.5	6.0	6.0	9.0	8.5	8.5
4	4.0	3.5	4.0	4.0	3.5	4.0	6.0	6.0	6.0	9.5	9.0	9.5
5	3.5	3.5	3.5	4.0	4.0	4.0	6.0	5.5	6.0	10.0	9.5	10.0
6	3.5	3.5	3.5	4.0	4.0	4.0	5.5	5.5	5.5	10.0	9.5	10.0
7	3.5	3.5	3.5	4.0	4.0	4.0	5.5	5.5	5.5	10.0	9.5	10.0
8	3.5	3.5	3.5	4.0	4.0	4.0	5.5	5.5	5.5	10.5	9.5	10.0
9	3.5	3.5	3.5	4.0	4.0	4.0	5.5	5.5	5.5	10.5	10.0	10.5
10	3.5	3.5	3.5	4.0	4.0	4.0	6.0	5.5	6.0	10.5	9.5	10.0
11	3.5	3.5	3.5	4.0	4.0	4.0	6.0	6.0	6.0	10.5	10.0	10.0
12	4.0	3.5	3.5	4.5	4.0	4.0	6.5	6.0	6.0	11.0	10.0	11.0
13	4.0	3.5	4.0	4.0	4.0	4.0	7.0	6.5	6.5	11.5	11.0	11.5
14	4.0	3.5	4.0	4.0	4.0	4.0	7.0	6.5	6.5	11.5	11.5	11.5
15	4.0	3.5	4.0	4.0	4.0	4.0	7.0	6.5	7.0	11.5	11.5	11.5
16	3.5	3.5	3.5	4.5	4.0	4.5	7.0	7.0	7.0	11.5	11.0	11.0
17	3.5	3.5	3.5	4.5	4.5	4.5	7.0	6.5	6.5	12.0	11.5	11.5
18	3.5	3.5	3.5	5.0	4.5	5.0	7.0	6.5	7.0	11.5	11.5	11.5
19	3.5	3.0	3.5	5.0	5.0	5.0	7.5	7.0	7.5	12.0	11.5	11.5
20	3.5	3.0	3.5	5.5	5.0	5.0	7.5	7.5	7.5	12.0	11.5	12.0
21	3.5	3.0	3.5	5.5	5.0	5.0	7.5	7.0	7.0	12.5	11.5	12.0
22	3.5	3.5	3.5	5.5	5.0	5.5	7.5	7.0	7.0	12.5	11.5	12.0
23	3.5	3.5	3.5	6.0	5.5	5.5	7.5	7.5	7.5	13.0	12.0	12.5
24	3.5	3.5	3.5	6.0	5.5	6.0	8.0	7.5	8.0	13.0	12.5	13.0
25	3.5	3.5	3.5	6.5	6.0	6.0	8.0	8.0	8.0	13.0	12.5	13.0
26	3.5	3.5	3.5	6.5	6.0	6.5	8.5	8.0	8.0	13.0	12.5	13.0
27	3.5	3.5	3.5	6.5	6.0	6.5	8.5	8.5	8.5	13.0	12.5	13.0
28	3.5	3.5	3.5	6.5	6.0	6.5	8.5	8.0	8.5	13.0	12.5	12.5
29	---	---	---	6.5	6.5	6.5	8.5	8.0	8.5	13.0	12.5	12.5
30	---	---	---	6.5	6.0	6.5	9.0	8.5	8.5	---	---	---
31	---	---	---	6.5	6.0	6.5	---	---	---	---	---	---
MONTH	4.0	3.0	3.5	6.5	3.5	5.0	9.0	5.5	7.0	13.0	9.5	11.0

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	19.0	18.0	18.5	20.5	19.5	20.0	18.5	17.5	18.0
2	---	---	---	19.5	18.5	19.0	21.0	19.0	20.0	18.5	17.5	18.0
3	---	---	---	19.5	18.5	19.0	21.0	19.5	20.5	18.5	18.0	18.0
4	---	---	---	19.0	18.5	18.5	21.0	20.0	20.5	18.5	17.5	18.0
5	---	---	---	19.0	18.5	19.0	21.0	19.5	20.5	18.0	17.5	18.0
6	---	---	---	19.5	19.0	19.0	20.5	19.5	20.0	18.0	18.0	18.0
7	---	---	---	19.0	18.5	19.0	20.5	19.5	20.0	18.0	17.5	18.0
8	---	---	---	19.5	18.5	19.0	21.0	20.5	20.5	17.5	17.5	17.5
9	---	---	---	20.0	18.5	19.0	21.0	20.0	20.5	18.0	17.5	17.5
10	---	---	---	20.0	18.5	19.0	20.5	19.5	20.5	18.0	17.5	17.5
11	---	---	---	19.5	18.0	19.0	20.5	19.0	19.5	17.5	17.0	17.5
12	---	---	---	20.0	19.0	19.5	20.5	19.5	20.0	17.0	16.5	17.0
13	---	---	---	20.0	19.5	19.5	20.5	19.5	20.0	17.0	17.0	17.0
14	---	---	---	20.0	19.0	19.5	20.5	19.5	20.0	17.0	16.5	17.0
15	---	---	---	20.0	19.0	19.5	20.0	19.0	19.5	17.0	16.0	16.5
16	---	---	---	20.0	19.5	20.0	20.0	19.5	19.5	16.5	15.5	16.0
17	---	---	---	20.0	19.5	19.5	20.0	19.5	19.5	16.5	16.0	16.0
18	---	---	---	20.0	19.5	20.0	20.0	19.5	19.5	16.5	16.0	16.0
19	---	---	---	20.5	19.5	20.0	19.5	19.0	19.5	16.5	16.0	16.0
20	---	---	---	20.5	20.0	20.0	19.5	19.0	19.0	16.0	16.0	16.0
21	18.0	17.5	17.5	20.0	19.5	20.0	19.5	19.0	19.0	16.0	16.0	16.0
22	18.0	17.0	17.5	20.5	19.5	20.0	19.0	18.5	18.5	16.0	15.5	15.5
23	18.0	17.5	17.5	20.5	20.0	20.0	18.5	18.5	18.5	15.5	15.5	15.5
24	17.5	17.0	17.5	20.0	19.0	19.5	19.0	18.5	18.5	15.5	15.5	15.5
25	17.5	17.0	17.0	21.0	19.0	20.0	18.5	18.0	18.5	15.5	15.0	15.5
26	18.0	17.0	17.5	20.5	19.5	20.0	18.5	18.0	18.0	15.5	15.0	15.5
27	18.5	17.5	18.0	20.5	19.5	20.0	19.0	18.0	18.5	15.5	15.0	15.5
28	19.0	18.0	18.5	20.0	19.0	19.5	18.5	18.0	18.0	15.0	15.0	15.0
29	20.0	18.0	18.5	20.5	19.5	20.0	18.5	18.0	18.0	15.5	15.0	15.0
30	18.5	18.0	18.0	20.5	19.5	20.0	18.0	18.0	18.0	15.5	15.0	15.0
31	---	---	---	20.5	19.5	20.0	18.0	18.0	18.0	---	---	---
MONTH	20.0	17.0	18.0	21.0	18.0	19.5	21.0	18.0	19.5	18.5	15.0	16.5
YEAR	21.0	2.5	10.0									

12455100 CHAMOKANE CREEK NEAR SPRINGDALE, WA

LOCATION.--Lat 47°59'41", long 117°43'51", in SE¼SW¼ sec.23, T.29 N., R.40 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, on right bank downstream wingwall of county road bridge, 4.5 mi (6.9 km) south of Springdale.

DRAINAGE AREA.--99.9 mi^2 (258.7 km^2).

PERIOD OF RECORD.--June 1973 to September 1978 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 1,870 ft (570 m), from topographic map.

REMARKS.--Records good except those for period Dec. 14 to Mar. 6, which are fair. Some diversions for irrigation and domestic use.

AVERAGE DISCHARGE.--5 years (water years, 1974-78), 50.1 ft^3/s (1.419 m^3/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,950 ft^3/s (55.2 m^3/s) about Jan. 16, 1974, gage height, 9.10 ft (2.774 m), from high-water mark in well, from rating curve extended above 240 ft^3/s (6.80 m^3/s); no flow Aug. 2-6, 9-23, 1977, July 24 to Aug. 15, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 480 ft^3/s (13.6 m^3/s) Mar. 24, gage height, 5.70 ft (1.737 m); no flow July 24-Aug. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	3.5	8.9	9.3	8.5	35	192	39	14	2.6	.00	.77
2	1.5	4.9	7.8	9.5	8.5	25	264	35	14	2.6	.00	.61
3	1.5	7.9	7.8	6.4	8.5	22	226	31	12	2.4	.00	.45
4	1.4	9.7	8.3	8.0	8.8	21	182	30	11	2.5	.00	.49
5	1.3	3.0	8.8	9.5	9.5	21	264	30	9.5	2.6	.00	.65
6	1.3	2.3	6.2	11	11	23	270	26	8.0	2.6	.00	1.1
7	1.3	2.1	5.1	9.5	14	38	210	24	7.2	2.7	.00	1.2
8	1.2	2.0	4.0	9.5	19	45	165	21	6.5	2.2	.00	3.2
9	1.2	2.5	3.8	9.8	31	80	133	20	6.2	2.2	.00	2.7
10	1.2	2.7	4.5	9.5	63	122	113	19	5.8	1.6	.00	3.5
11	1.3	2.8	5.6	9.2	56	115	98	17	5.8	1.1	.00	2.2
12	1.3	2.8	9.5	9.0	65	114	81	15	5.8	.82	.00	1.7
13	1.2	3.5	30	9.0	35	120	72	18	6.5	.87	.00	1.5
14	1.2	4.7	140	9.4	27	95	65	38	7.0	.61	.00	1.3
15	1.3	6.5	170	10	24	79	60	53	7.0	.49	.58	1.0
16	1.3	6.0	130	9.8	22	78	69	59	6.2	.37	6.5	.87
17	1.2	5.6	80	9.6	21	91	78	50	6.0	.45	2.0	.87
18	1.2	5.3	40	9.5	21	143	56	61	5.3	.37	3.2	.82
19	1.2	4.5	25	9.8	22	208	50	50	3.8	.87	1.8	.82
20	1.3	3.5	12	9.5	23	233	48	40	2.7	.97	1.2	.82
21	1.3	2.5	8.0	9.4	24	246	43	32	3.2	.65	.73	1.3
22	1.4	2.0	5.5	9.4	26	258	38	26	2.9	.41	.65	2.0
23	1.5	1.9	4.3	9.0	28	284	38	24	2.1	.33	.65	1.4
24	1.5	1.9	3.6	8.8	29	410	35	25	2.1	.05	1.5	1.4
25	1.5	2.0	3.5	8.8	33	346	32	24	2.5	.00	2.0	1.3
26	1.6	2.2	3.5	8.8	32	312	30	22	2.3	.00	1.5	1.2
27	1.5	2.6	3.6	8.6	32	272	30	23	2.7	.00	.97	1.2
28	1.7	3.4	3.8	9.0	40	252	50	26	2.0	.01	.73	.87
29	3.6	6.7	4.1	8.8	---	266	57	22	2.0	.00	.61	.77
30	3.8	13	4.5	8.8	---	206	46	19	3.8	.00	.49	1.0
31	2.7	---	5.1	8.6	---	173	---	17	---	.00	.65	---
TOTAL	48.0	118.6	744.2	277.0	721.0	4705	3103	938	175.9	32.37	23.76	39.01
MEAN	1.55	3.95	24.7	8.94	25.8	152	103	30.3	5.86	1.04	.77	1.30
MAX	3.8	13	170	11	63	410	270	61	14	2.7	6.5	3.5
MIN	1.2	1.9	3.5	5.3	8.5	21	38	15	2.0	.00	.00	.45
CFSM	.02	.04	.25	.09	.26	1.52	1.03	.30	.06	.01	.008	.01
IN.	.02	.04	.28	.10	.27	1.75	1.16	.35	.07	.01	.01	.01
AC-FT	95	235	1520	549	1430	9330	6150	1860	349	64	47	77

CAL YR 1977 TOTAL 1935.04 MEAN 5.30 MAX 170 MIN .00 CFSM .05 IN .72 AC-FT 3840
WTR YR 1978 TOTAL 10946.04 MEAN 30.0 MAX 410 MIN .00 CFSM .30 IN 4.08 AC-FT 21710

NOTE.--No gage-height record Dec. 26 to Feb. 7.

12433200 CHAMOKANE CREEK BELOW FALLS, NEAR LONG LAKE, WA

LOCATION.--Lat 47°51'42", long 117°51'28", in SE¼SW¼ sec.2, T.27 N., R.39 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, on right bank 800 ft (244 m) downstream from Chamokane Falls, 1.4 mi (2.3 km) upstream from mouth, and 1.8 mi (2.9 km) north of town of Long Lake.

DRAINAGE AREA.--179 mi^2 (464 km^2).

PERIOD OF RECORD.--February 1971 to September 1978 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,418.5 ft (432.36 m) above mean sea level.

REMARKS.--Records good. No known regulation. Diversions upstream for irrigation, domestic use, and fish hatchery.

AVERAGE DISCHARGE.--7 years, 67.5 ft^3/s (1.912 m^3/s), 5.12 in/yr (130 mm/yr), 48,900 acre-ft/yr (60.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,200 ft^3/s (62.3 m^3/s) Apr. 25, 1975, gage height, 5.06 ft (1.542 m), from rating curve extended above 500 ft^3/s (14.2 m^3/s) on basis of slope-area measurement of peak flow; minimum, 16 ft^3/s (0.45 m^3/s) July 10, 1973, gage height, 0.87 ft (0.265 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft^3/s (8.50 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 24	1550	*526	9.23	2.33	0.710	Jan. 3	1200	(a)		*2.67	0.814

a Backwater from ice.

Minimum daily discharge, 15 ft^3/s (0.42 m^3/s) Dec. 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	29	24	28	23	58	186	67	28	25	25	27
2	23	27	23	31	23	44	248	58	27	24	24	27
3	23	26	24	35	24	41	237	53	26	24	24	26
4	23	25	23	32	23	48	210	52	24	24	24	24
5	23	25	23	30	23	50	240	50	23	24	24	25
6	23	25	23	29	28	45	263	47	22	24	24	25
7	23	25	22	28	32	42	234	44	23	24	25	26
8	23	24	22	26	44	50	204	39	22	25	25	28
9	23	25	22	28	95	77	178	38	22	25	24	26
10	23	26	22	27	106	113	156	35	22	25	24	26
11	23	26	21	26	95	127	145	34	22	26	25	25
12	23	25	24	25	71	120	127	32	22	26	25	25
13	23	26	44	25	58	132	117	34	24	26	25	25
14	23	25	117	25	58	120	108	47	24	25	26	25
15	23	25	153	25	56	101	106	75	24	25	35	25
16	23	24	109	24	53	104	106	78	24	27	41	25
17	23	24	62	24	42	108	117	73	23	27	29	25
18	23	24	41	24	42	135	97	67	23	27	28	25
19	23	23	30	24	41	183	86	78	23	25	27	25
20	22	22	22	23	42	212	84	60	22	25	26	25
21	22	22	18	24	42	234	80	52	22	24	26	24
22	23	22	17	25	44	237	75	44	23	25	26	26
23	23	22	17	24	48	248	73	42	23	24	27	26
24	23	22	16	23	50	294	67	42	24	24	26	25
25	23	22	16	24	58	284	63	42	24	24	26	24
26	23	23	15	24	56	269	58	39	24	25	26	25
27	23	23	15	23	56	246	57	37	23	25	25	24
28	24	23	16	23	62	231	73	30	23	25	25	25
29	27	24	17	23	---	231	82	30	29	25	25	25
30	26	23	20	23	---	210	77	35	26	25	24	25
31	24	---	27	23	---	192	---	32	---	25	27	---
TOTAL	721	726	1045	800	1355	4586	3954	1503	711	788	813	761
MEAN	23.3	24.2	33.7	25.8	48.4	148	132	48.5	23.7	25.4	26.2	25.4
MAX	27	29	153	35	106	294	263	78	29	28	41	28
MIN	22	22	15	23	23	41	57	32	22	24	24	24
CFSM	.13	.14	.19	.14	.27	.83	.74	.27	.13	.14	.15	.14
IN.	.15	.15	.22	.17	.28	.95	.82	.31	.15	.16	.17	.16
AC-FT	1430	1440	2070	1590	2690	9100	7840	2980	1410	1560	1610	1510

CAL YR 1977 TOTAL 9404 MEAN 25.8 MAX 153 MIN 15 CFSM .14 IN 1.95 AC-FT 18650
WTR YR 1978 TOTAL 17763 MEAN 48.7 MAX 294 MIN 15 CFSM .27 IN 3.69 AC-FT 35230

12434590 SANPOIL RIVER ABOVE JACK CREEK AT KELLER, WA

LOCATION.--Lat 48°05'04", long 118°41'25", in NW¼SW¼ sec.20, T.30 N., R.35 E., Ferry County, Hydrologic Unit 17020004, at road bridge 0.4 mi (0.6 km) upstream from Jack Creek, 0.5 mi (0.8 km) northwest of Keller, 2.4 mi (3.9 km) downstream from gaging station, and at mile 11.7 (18.8 km).

DRAINAGE AREA.--About 889 mi^2 (2,303 km^2).

PERIOD OF RECORD.--Water years 1960-1966 (partial-record station published as 12435000), 1972 (published as 12434500 "near Keller"), 1975 to current year.

REMARKS.--Water discharge from rating, discharge value is fair. Water temperature records collected July 1968 to September 1970 and chemical analyses collected October 1972 to February 1973, at gaging station 2.4 mi (3.9 km) upstream.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
OCT , 1977							
21...	1040	29	233	7.7	6.5	0	0
DEC							
28...	1425	71	267	7.7	.1	5	0
MAR , 1978							
15...	1000	284	176	7.8	2.7	10	2
MAY							
24...	1345	680	120	8.1	9.7	20	4
JUL							
18...	1140	160	185	7.6	18.6	--	--
SEP							
14...	1030	96	192	7.8	12.8	5	1

DATE	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977							
21...	12.2	18	.01	.02	.02	.01	.03
DEC							
28...	14.2	5	.09	.02	.02	.01	.03
MAR , 1978							
15...	13.5	4	.05	.02	.06	.03	.09
MAY							
24...	10.7	12	.01	.03	.06	.03	.09
JUL							
18...	9.1	116	--	--	--	--	--
SEP							
14...	10.4	22	.08	.02	.03	.02	.06

DIVERSION AT GRAND COULEE DAM

12435500 FEEDER CANAL AT GRAND COULEE, WA

LOCATION.--Lat 47°57'05", long 118°59'40", on line between secs.1 and 2, T.28 N., R.30 E., Grant County, Hydrologic Unit 17020001, on left bank at Grand Coulee, 0.2 mi (0.3 km) downstream from intake and 0.5 mi (0.8 km) southwest of Grand Coulee Dam.

PERIOD OF RECORD.--October 1951 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,550.0 ft (472.44 m) Bureau of Reclamation datum, adjustment of 1937.

REMARKS.--Records excellent. Water is pumped (beginning May 1951) from Franklin D. Roosevelt Lake behind Grand Coulee Dam, through a lift of about 280 ft (85 m) into feeder canal for a distance of 2 mi (3.2 km) into Banks Lake (formerly called equalizing reservoir). From Banks Lake it is distributed through a system of canals to the Columbia Basin project. Daily discharge computed from pump rating and head. On December 23, 1974, two pump generators (Nos. 7 and 8) were put into operation; these are used to generate power during peak power demand periods in winter months by utilizing the water stored in Banks Lake and returning it back into Franklin D. Roosevelt Lake. Water will be pumped into Banks Lake during periods of low power demand.

COOPERATION.--Discharge records furnished by Bureau of Reclamation; records reviewed and pump discharge checked with discharge measurements by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 12,500 ft³/s (354 m³/s) July 30, 1974; minimum daily discharge 1,920 ft³/s (54.4 m³/s) Feb. 26, 1975, reverse flow from Banks Lake.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 11,500 ft³/s (326 m³/s) July 4, 7, and 8; minimum discharge, 220 ft³/s (6.23 m³/s), reverse flow from Banks Lake July 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	9630	.00	.00	.00	.00	.00	.0	.0	11400	6400	.00
2	.00	9610	.00	.00	.00	.00	.00	.0	.0	11400	6400	.00
3	.00	9590	.00	.00	.00	.00	.00	.0	.0	11400	6400	.00
4	.00	9570	.00	.00	.00	.00	.00	3140	.0	11500	6990	.00
5	.00	9560	.00	.00	.00	.00	.00	7720	5010	11400	7980	.00
6	.00	7980	.00	.00	.00	.00	.00	7690	9070	6910	7980	.00
7	.00	7960	.00	.00	.00	.00	.00	7720	9110	11500	7980	.00
8	.00	7950	.00	.00	.00	.00	.00	7730	9160	11500	7980	.00
9	.00	4230	.00	.00	.00	.00	.00	7710	9190	11100	2810	.00
10	.00	1590	.00	.00	.00	.00	.00	7670	9220	9320	.0	.00
11	.00	1590	.00	.00	.00	.00	.00	7640	9230	9250	641	.00
12	.00	1590	.00	.00	.00	.00	.00	7630	9260	5200	9580	.00
13	.00	1600	.00	.00	.00	.00	.00	7610	9270	9590	9580	.00
14	.00	1600	.00	.00	.00	.00	.00	7610	9300	9580	2160	.00
15	.00	1600	.00	.00	.00	.00	.00	7640	9430	9560	.0	.00
16	.00	831	.00	.00	.00	.00	.00	7700	10100	9560	.0	.00
17	.00	.00	.00	.00	.00	.00	.00	7760	10800	9000	.0	.00
18	.00	.00	.00	.00	.00	.00	.00	7830	11300	8170	636	.00
19	.00	.00	.00	.00	.00	.00	.00	7900	11200	8320	9650	.00
20	.00	.00	.00	.00	.00	.00	.00	7970	11200	8320	9640	.00
21	.00	.00	.00	.00	.00	.00	.00	8040	11200	8100	2290	.00
22	.00	.00	.00	.00	.00	.00	.00	8010	10200	7980	997	.00
23	.00	.00	.00	.00	.00	.00	.00	8180	11300	7950	3450	.00
24	.00	.00	.00	.00	.00	.00	.00	8260	11300	7990	3200	.00
25	.00	.00	.00	.00	.00	.00	.00	8320	11300	7990	3180	.00
26	.00	.00	.00	.00	.00	.00	.00	8360	11300	7980	9620	.00
27	3330	.00	.00	.00	.00	.00	.00	8400	10400	7980	3460	.00
28	7120	.00	.00	.00	.00	.00	.00	8440	11300	7980	.0	.00
29	10100	.00	.00	.00	---	.00	.00	8470	11400	7980	.0	.00
30	9650	.00	.00	.00	---	.00	.00	8500	11400	7190	.0	.00
31	9650	---	.00	.00	---	.00	---	4400	---	6390	.0	---
TOTAL	39850.00	86481.00	.00	.00	.00	.00	.00	214050.0	262950.0	279530	128204.0	.00
MEAN	1285	2883	.000	.000	.000	.000	.000	6905	8765	9017	4136	.000
MAX	10100	9630	.00	.00	.00	.00	.00	8500	11400	11500	9650	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	5200	.00	.00
AC-FT	79040	171500	.00	.00	.00	.00	.00	424600	521000	554400	254300	.00

CAL YR 1977 TOTAL 1324229.00 MEAN 3628 MAX 10100 MIN .00 AC-FT 2627000
WTR YR 1978 TOTAL 1011065.00 MEAN 2770 MAX 11500 MIN .00 AC-FT 2005000

12436000 FRANKLIN D. ROOSEVELT LAKE AT GRAND COULEE DAM, WA

LOCATION.--Lat 47°57'20", long 118°59'02", near center of sec.1, T.28 N., R.30 E., Grant County, Hydrologic Unit 17020001, in block 12 of Grand Coulee Dam on Columbia River, and at mile 596.6 (959.9 km).

DRAINAGE AREA.--74,700 mi² (193,500 km²) approximately.

PERIOD OF RECORD.--April 1938 to current year. Prior to October 1943, published as Columbia River Reservoir at Grand Coulee Dam.

REVISED RECORDS.--WSP 1286: 1942, 1945(M). WSP 1316: 1942 (May monthend contents). WSP 1933: Drainage area.

CORRECTIONS.--WRD Wash. 1973: 1965, 1967. WDR WA-75-1: 1974 monthend contents.

GAGE.--Water-stage recorder. Datum of gage is at 0.00 ft (0.000 m), Bureau of Reclamation datum, adjustment of 1937, or 1.425 ft (0.434 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Apr. 24, 1942, nonrecording gage at site 2,000 ft (610 m) upstream at same datum.

REMARKS.--Reservoir is formed by concrete dam; construction of dam began in 1934; completed in 1941; storage began early in construction period. Capacity, 5,022,179 acre-ft (6,190 hm³) between elevations, 1,208 ft (368.2 m), proposed lower limit of operation, and 1,288 ft (392.6 m), top of gates. Capacity increased to 5,185,452 acre-ft (6,390 hm³) by use of 2 ft (0.6 m) flashboards installed after high-water period each year beginning August 1961. Storage below 1,208 ft (368.2 m), 4,209,207 acre-ft (5,190 hm³). Figures given herein represent total contents. Water is used for power development and irrigation. Flow is regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversions by Feeder Canal (see 12435500) and for irrigation of about 350,000 acres (141,700 hm²) in the United States plus an additional 37,000 acres (15,000 hm²) in Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents recorded, 9,586,200 acre-ft (11,800 hm³) July 17, 1942, June 3, 1945, elevation, 1,290.5 ft (393.28 m); maximum elevation, 1,290.36 ft (393.302 m), Aug. 6, 1976; minimum contents observed, 16,200 acre-ft (20.0 hm³) Aug. 29, 1938, elevation 956.1 ft (291.42 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 9,403,713 acre-ft (11,600 hm³) Sept. 8, elevation, 1,290.11 ft (393.226 m); minimum observed, 4,948,447 acre-ft (6,100 hm³) May 13, elevation, 1,223.25 ft (372.847 m).

Capacity table dated October 24, 1975 (elevation, in feet, and contents, in acre-feet)
(Prepared by Geological Survey from data furnished by Bureau of Reclamation)

1,210.0	4,301,035	1,270.0	7,864,082
1,230.0	5,308,657	1,291.0	9,477,261
1,250.0	6,501,603		

ELEVATION, IN FEET ABOVE NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1286.96	1286.30	1286.24	1282.95	1260.63	1244.82	1242.54	1225.98	1249.71	1284.33	1289.42	1287.37
2	1287.42	1286.35	1286.32	1282.54	1259.30	1244.22	1242.86	1226.30	1251.99	1285.33	1289.59	1286.96
3	1287.27	1285.84	1287.18	1281.82	1257.68	1243.28	1243.29	1226.10	1254.95	1286.13	1289.59	1287.84
4	1287.22	1285.77	1287.82	1281.42	1256.65	1242.71	1243.08	1225.70	1258.38	1287.66	1289.41	1288.64
5	1287.05	1286.21	1287.95	1280.65	1256.62	1242.68	1242.98	1225.10	1261.02	1288.29	1289.30	1289.31
6	1286.85	1286.62	1287.88	1280.27	1255.95	1242.38	1242.70	1224.70	1263.09	1288.72	1289.34	1289.74
7	1286.74	1286.35	1287.74	1279.70	1255.76	1242.24	1242.45	1225.90	1264.74	1288.94	1289.16	1289.83
8	1286.76	1286.11	1287.13	1279.07	1255.85	1242.39	1242.47	1225.70	1266.29	1288.97	1288.57	1290.09
9	1286.86	1286.11	1286.52	1279.68	1255.47	1242.49	1242.49	1225.10	1267.18	1289.70	1288.38	1289.62
10	1286.75	1286.62	1285.89	1278.93	1255.26	1242.64	1241.62	1224.69	1268.31	1289.75	1288.30	1289.84
11	1286.43	1286.74	1285.51	1278.25	1255.73	1243.34	1240.51	1224.00	1269.19	1289.50	1288.38	1290.04
12	1286.28	1287.29	1285.53	1277.68	1255.61	1244.09	1239.11	1223.50	1269.87	1289.55	1288.32	1289.98
13	1286.51	1288.05	1285.51	1277.44	1254.76	1243.71	1237.77	1223.25	1270.71	1289.20	1288.35	1289.97
14	1286.35	1287.98	1285.91	1277.18	1253.92	1243.70	1236.31	1223.60	1271.63	1288.75	1288.78	1289.84
15	1286.69	1287.65	1285.76	1276.92	1253.09	1243.36	1234.76	1224.70	1272.49	1288.40	1289.06	1289.64
16	1286.99	1287.21	1286.01	1276.51	1251.99	1243.38	1233.32	1225.98	1273.42	1288.40	1289.04	1289.56
17	1286.54	1286.61	1286.15	1275.91	1250.96	1243.70	1231.97	1227.38	1274.26	1288.70	1289.32	1289.15
18	1285.96	1286.03	1286.71	1275.78	1250.42	1244.24	1230.61	1228.98	1274.96	1288.51	1289.58	1288.76
19	1285.51	1285.78	1286.61	1275.18	1250.92	1245.04	1229.21	1230.70	1275.63	1288.98	1289.47	1288.71
20	1285.11	1285.53	1286.36	1274.36	1250.33	1244.22	1228.26	1232.40	1276.10	1289.01	1289.37	1288.57
21	1284.95	1284.91	1285.82	1274.07	1249.44	1244.11	1227.22	1234.28	1276.81	1289.07	1289.52	1288.45
22	1285.45	1284.45	1285.43	1273.62	1248.63	1243.50	1226.68	1235.95	1277.56	1289.30	1289.75	1288.15
23	1286.31	1284.30	1285.27	1272.42	1247.58	1242.54	1225.98	1237.85	1278.01	1289.66	1289.68	1288.35
24	1286.61	1284.68	1285.67	1270.99	1246.49	1241.89	1225.22	1239.91	1278.53	1289.66	1289.15	1288.57
25	1286.74	1284.68	1286.48	1269.44	1245.99	1241.67	1224.63	1241.04	1279.65	1289.47	1288.72	1288.73
26	1286.85	1285.33	1286.02	1267.98	1246.51	1242.29	1224.16	1242.21	1289.19	1289.21	1288.14	1288.66
27	1286.38	1286.19	1285.27	1266.79	1245.74	1242.02	1223.98	1243.51	1280.68	1289.11	1288.21	1288.57
28	1286.05	1286.35	1284.63	1265.87	1245.20	1241.43	1223.96	1244.54	1281.27	1289.17	1288.31	1288.37
29	1286.33	1286.51	1284.10	1264.73	---	1241.79	1224.33	1245.33	1281.95	1289.28	1288.39	1288.21
30	1286.79	1286.45	1283.69	1263.57	---	1242.14	1225.48	1246.06	1282.98	1289.27	1288.15	1288.11
31	1286.71	---	1283.26	1262.10	---	1242.35	---	1247.98	---	1289.23	1287.88	---
MEAN	1286.49	1286.15	1286.00	1274.98	1252.59	1243.04	1233.99	1231.55	1271.05	1288.68	1289.02	1288.92
MAX	1287.42	1288.05	1287.95	1282.95	1260.63	1245.04	1243.29	1247.98	1282.98	1289.75	1289.75	1290.09
MIN	1284.95	1284.30	1283.26	1262.10	1245.20	1241.43	1223.98	1223.25	1249.71	1284.33	1287.88	1286.96
†	9,127,434	9,106,011	8,854,612	7,307,104	6,199,377	6,024,465	5,064,984	6,373,241	8,826,576	9,551,495	9,221,671	9,240,299
‡	+10,417	-20,823	-251,999	-1,547,508	-1,107,727	-174,912	-959,481	+1,308,257	+2,453,335	+504,919	-109,824	+18,628

CAL YR 1977.....‡ -304,137
WTR YR 1978.....‡ +123,282

† Total contents, in acre feet, at end of month.
‡ Change in contents in acre-feet.

12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA

LOCATION.--Lat 47°57'56", long 118°58'54", in SW¼SE¼ sec.36, T.29 N., R.30 E., Douglas County, Hydrologic Unit 17020005, in pier 3 on west side of bridge on State Highway 155, 3,200 ft (975 m) downstream from Grand Coulee Dam, 14.2 mi (22.8 km) upstream from Nespelem River, and at mile 596.3 (959.4 km).

DRAINAGE AREA.--74,700 mi² (193,500 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1913 to June 1923 (monthly discharge only), July to December 1923, January 1924 to May 1928 (monthly discharge only), June 1928 to current year. Published as "at Grand Coulee near Nespelem" prior to 1936 and as "at Grand Coulee" 1936-42.

REVISED RECORDS.--WSP 1286: 1942, 1947. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at 0.00 ft (0.000 m) Bureau of Reclamation datum, adjustment of 1937. June 27 to Dec. 31, 1923, June 12, 1928, to Mar. 31, 1931, nonrecording gage at site 0.5 mi (0.8 km) upstream at datum 2.4 ft (0.7 m) lower. Apr. 1, 1931, to Dec. 31, 1935, water-stage recorder at site 850 ft (259 m) downstream at present datum. Since June 12, 1955, auxiliary water-stage recorder 5.5 mi (8.5 km) downstream from base gage at datum 1.42 ft (0.433 m) lower.

REMARKS.--Water-discharge records good. Flow is regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversions by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--65 years, 110,300 ft³/s (3,124 m³/s), 79,910,000 acre-ft/yr (98,500 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 637,800 ft³/s (18,100 m³/s) June 12, 1948, elevation, 987.90 ft (301.112 m); minimum, 14,900 ft³/s (422 m³/s) Dec. 17, 1956, elevation, 934.37 ft (284.796 m); minimum daily, 15,500 ft³/s (439 m³/s) Feb. 1, 1937.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a discharge of 725,000 ft³/s (20,500 m³/s), estimated.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 178,000 ft³/s (5,040 m³/s) Sept. 9; maximum elevation, 962.10 ft (293.248 m) Sept. 9; minimum daily discharge, 36,100 ft³/s (1,020 m³/s) Oct. 30; minimum elevation, 942.18 ft (287.176 m) June 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51200	81500	79900	72600	127000	105000	120000	124000	110000	65100	81500	98300
2	51400	71400	73900	89200	120000	112000	104000	134000	91700	72200	84000	95000
3	85000	91600	48700	105000	117000	119000	107000	145000	75500	85600	87400	63000
4	71000	78800	44700	88700	111000	106000	126000	144000	57300	50300	96700	82500
5	72800	54400	67100	93900	64900	87900	133000	142000	81100	88100	101000	97000
6	79000	53300	73500	100000	101000	87300	131000	142000	87500	115000	94000	123000
7	64500	79200	76700	84900	81300	88000	133000	91600	98200	111000	96600	135000
8	58300	89200	85600	79000	76700	74900	125000	126000	94800	119000	100000	155000
9	52800	82400	85800	94800	90700	83400	115000	131000	111000	98300	95000	178000
10	66500	61900	83400	115000	88500	78500	127000	134000	112000	128000	107000	127000
11	71500	76000	80700	114000	66500	66800	137000	136000	112000	133000	101000	113000
12	69850	59900	79400	104000	79900	57100	142000	133000	113000	131000	99600	135000
13	55600	46500	76600	98100	105000	90000	140000	136000	111000	153000	99300	120000
14	69300	82600	71200	91600	112000	83200	144000	130000	108000	153000	97300	115000
15	41700	91800	79300	91200	109000	90300	143000	126000	102000	137000	89600	116000
16	43600	98500	74800	87000	117000	86000	136000	133000	96300	109000	86800	91400
17	76200	101000	77200	89900	113000	66300	136000	130000	96100	108000	86600	91500
18	70500	102000	56600	83000	96800	63100	135000	131000	94700	136000	86600	104000
19	73400	95700	85100	94500	62200	51300	134000	123000	95600	127000	87700	96600
20	82100	85900	87300	102000	106000	98200	137000	138000	95600	129000	88200	102000
21	72800	105000	88600	80700	117000	83800	146000	131000	85000	131000	88000	102000
22	53100	106000	88200	86900	119000	94600	133000	146000	90300	118000	87700	94100
23	37700	97500	81300	108000	120000	110000	133000	131000	92600	108000	86400	79300
24	60800	86200	41100	121000	125000	107000	132000	122000	92700	119000	88100	77900
25	66600	69000	36300	117000	104000	102000	131000	144000	68500	111000	88600	79300
26	69200	58000	73100	125000	66700	78700	131000	141000	93700	111000	88300	91300
27	85500	37800	99400	110000	111000	108000	133000	138000	98700	111000	74500	96000
28	76800	59400	93200	99900	110000	113000	131000	134000	98000	111000	79300	97900
29	46700	66500	81600	107000	---	86400	132000	141000	104000	111000	81100	123000
30	36100	77900	76600	126000	---	99300	109000	147000	91400	111000	85600	112000
31	78200	---	74300	128000	---	113000	---	102000	---	109000	86700	---
TOTAL	1991300	2344900	2319200	3087900	2826200	2782100	3916000	4098600	2866300	3491600	2864200	3192000
MEAN	64240	78160	74810	99610	100900	89750	130500	132200	95540	112600	92460	106400
MAX	85800	106000	99400	128000	128000	119000	146000	147000	118000	153000	109000	178000
MIN	36100	37800	36300	72600	62200	51300	104000	91600	57300	50300	74500	63000
AC-FT	3950000	4651000	4600000	6125000	5606000	5518000	7767000	8130000	5685000	6926000	5662000	6333000

CAL YR 1977 TOTAL 29325200 MEAN 80340 MAX 139000 MIN 33300 AC-FT 58170000
WTR YR 1978 TOTAL 35721100 MEAN 97870 MAX 178000 MIN 36100 AC-FT 70850000

12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-58, 1972, 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1950 to September 1958.
pH: November 1950 to September 1955.
WATER TEMPERATURES: November 1950 to September 1958, July 1974 to current year.

INSTRUMENTATION.--Temperature recorder since July 1974.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 19.0°C Aug. 9, 10, Sept. 8-10, 1978; minimum, 2.0°C Feb. 10-15, 17-28, Mar.1-13, 19, 20, 1975, Feb. 4-Mar. 4, 1978.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 19.0°C Aug. 9, 10, Sept. 8-10; minimum, 2.0°C Feb. 4 to Mar. 4.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW (CFS)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)
OCT . 1977							
26...	1500	--	70000	145	7.6	15.6	15
NOV							
16...	1515	--	101000	152	7.7	12.6	10
DEC							
14...	1435	--	77000	163	7.8	8.1	15
JAN . 1978							
11...	1305	--	122000	172	7.7	4.4	10
FEB							
22...	1510	--	125000	185	7.8	2.7	20
MAR							
15...	1450	--	91000	197	8.2	2.7	5
APR							
13...	0750	--	139000	178	8.2	5.4	10
MAY							
11...	0820	--	136000	168	7.3	9.0	10
JUN							
07...	1500	--	134000	140	7.9	11.3	15
JUL							
12...	1610	131000	--	134	7.7	15.6	15
AUG							
23...	1510	--	86800	140	7.8	17.9	15
SEP							
13...	1500	--	101000	128	7.7	18.4	10

DATE	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT . 1977							
26...	1	9.2	.11	.03	.03	.01	.03
NOV							
16...	2	9.9	.09	.10	.03	.00	.00
DEC							
14...	2	10.7	.12	.03	.02	.02	.06
JAN . 1978							
11...	5	11.7	.10	.08	.04	.03	.09
FEB							
22...	1	--	.14	.06	.04	.03	.09
MAR							
15...	2	13.7	.16	.04	.04	.02	.06
APR							
13...	3	13.2	.16	.06	.03	.00	.00
MAY							
11...	3	11.9	.07	.06	.03	.00	.00
JUN							
07...	3	12.9	.02	.03	.03	.00	.00
JUL							
12...	1	10.3	.02	.07	.02	.01	.03
AUG							
23...	1	8.6	.07	.02	.02	.01	.03
SEP							
13...	2	7.8	.10	.02	.02	.01	.03

12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	18.0	18.0	18.0	14.5	14.5	14.5	10.0	10.0	10.0	6.0	6.0	6.0
2	18.0	18.0	18.0	14.5	14.0	14.0	10.0	9.5	10.0	6.0	6.0	6.0
3	18.0	17.5	18.0	14.0	14.0	14.0	9.5	9.5	9.5	6.0	6.0	6.0
4	17.5	17.5	17.5	14.0	14.0	14.0	9.5	9.5	9.5	6.0	5.5	5.5
5	17.5	17.5	17.5	14.0	14.0	14.0	9.5	9.5	9.5	5.5	5.5	5.5
6	17.5	17.5	17.5	14.0	14.0	14.0	9.5	9.5	9.5	5.5	5.5	5.5
7	17.5	17.5	17.5	14.0	14.0	14.0	9.5	9.0	9.0	5.5	5.5	5.5
8	17.5	17.5	17.5	14.0	13.5	13.5	9.0	9.0	9.0	5.5	5.5	5.5
9	17.5	17.5	17.5	13.5	13.5	13.5	9.0	9.0	9.0	5.5	5.0	5.0
10	17.5	17.5	17.5	13.5	13.5	13.5	9.0	9.0	9.0	5.0	5.0	5.0
11	17.5	17.0	17.5	13.5	13.5	13.5	9.0	9.0	9.0	5.0	4.5	4.5
12	17.0	17.0	17.0	13.5	13.5	13.5	9.0	8.5	8.5	4.5	4.5	4.5
13	17.0	17.0	17.0	13.5	13.0	13.5	8.5	8.5	8.5	4.5	4.5	4.5
14	17.0	17.0	17.0	13.0	13.0	13.0	8.5	8.0	8.0	4.5	4.0	4.5
15	16.5	16.5	16.5	13.0	13.0	13.0	8.0	8.0	8.0	4.0	4.0	4.0
16	16.5	16.5	16.5	13.0	13.0	13.0	8.0	8.0	8.0	4.0	3.5	4.0
17	16.5	16.5	16.5	13.0	13.0	13.0	8.0	8.0	8.0	3.5	3.5	3.5
18	16.5	16.0	16.0	13.0	12.5	12.5	8.0	7.5	7.5	3.5	3.5	3.5
19	16.0	16.0	16.0	12.5	12.5	12.5	7.5	7.5	7.5	3.5	3.5	3.5
20	16.0	16.0	16.0	12.5	12.5	12.5	7.5	7.5	7.5	3.5	3.0	3.5
21	16.0	15.5	15.5	12.5	12.0	12.0	7.5	7.5	7.5	3.0	3.0	3.0
22	15.5	15.5	15.5	12.0	12.0	12.0	7.5	7.0	7.0	3.0	3.0	3.0
23	15.5	15.0	15.5	12.0	12.0	12.0	7.0	7.0	7.0	3.0	3.0	3.0
24	15.0	15.0	15.0	12.0	11.5	11.5	7.0	7.0	7.0	3.0	3.0	3.0
25	15.0	15.0	15.0	11.5	11.5	11.5	7.0	6.5	7.0	3.0	3.0	3.0
26	15.0	15.0	15.0	11.5	11.0	11.5	6.5	6.5	6.5	3.0	3.0	3.0
27	15.0	15.0	15.0	11.0	11.0	11.0	6.5	6.5	6.5	3.0	2.5	2.5
28	15.0	15.0	15.0	11.0	10.5	10.5	6.5	6.5	6.5	2.5	2.5	2.5
29	15.0	14.5	14.5	10.5	10.5	10.5	6.5	6.5	6.5	2.5	2.5	2.5
30	14.5	14.5	14.5	10.5	10.0	10.5	6.5	6.0	6.0	2.5	2.5	2.5
31	14.5	14.5	14.5	---	---	---	6.0	6.0	6.0	2.5	2.5	2.5
MONTH	18.0	14.5	16.5	14.5	10.0	12.5	10.0	6.0	8.0	6.0	2.5	4.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2.5	2.5	2.5	2.0	2.0	2.0	4.0	4.0	4.0	7.5	7.5	7.5
2	2.5	2.5	2.5	2.0	2.0	2.0	4.0	4.0	4.0	7.5	7.5	7.5
3	2.5	2.5	2.5	2.0	2.0	2.0	4.0	4.0	4.0	7.5	7.5	7.5
4	2.5	2.0	2.0	2.0	2.0	2.0	4.0	4.0	4.0	7.5	7.5	7.5
5	2.0	2.0	2.0	2.5	2.5	2.5	4.0	4.0	4.0	8.0	7.5	8.0
6	2.0	2.0	2.0	2.5	2.5	2.5	4.5	4.0	4.5	8.0	8.0	8.0
7	2.0	2.0	2.0	2.5	2.5	2.5	4.5	4.5	4.5	8.5	8.0	8.0
8	2.0	2.0	2.0	2.5	2.5	2.5	4.5	4.5	4.5	8.5	8.5	8.5
9	2.0	2.0	2.0	2.5	2.5	2.5	5.0	4.5	5.0	8.5	8.5	8.5
10	2.0	2.0	2.0	2.5	2.5	2.5	5.0	5.0	5.0	8.5	8.5	8.5
11	2.0	2.0	2.0	2.5	2.5	2.5	5.0	5.0	5.0	8.5	8.5	8.5
12	2.0	2.0	2.0	2.5	2.5	2.5	5.0	5.0	5.0	9.0	8.5	9.0
13	2.0	2.0	2.0	2.5	2.5	2.5	5.5	5.0	5.5	9.0	9.0	9.0
14	2.0	2.0	2.0	2.5	2.5	2.5	5.5	5.5	5.5	9.5	9.0	9.0
15	2.0	2.0	2.0	2.5	2.5	2.5	6.0	5.5	5.5	9.5	9.5	9.5
16	2.0	2.0	2.0	2.5	2.5	2.5	6.0	6.0	6.0	9.5	9.5	9.5
17	2.0	2.0	2.0	3.0	2.5	3.0	6.0	6.0	6.0	9.5	9.5	9.5
18	2.0	2.0	2.0	3.0	3.0	3.0	6.0	6.0	6.0	9.5	9.5	9.5
19	2.0	2.0	2.0	3.0	3.0	3.0	6.5	6.0	6.5	9.5	9.5	9.5
20	2.0	2.0	2.0	3.0	3.0	3.0	6.5	6.5	6.5	9.5	9.5	9.5
21	2.0	2.0	2.0	3.0	3.0	3.0	6.5	6.5	6.5	9.5	9.5	9.5
22	2.0	2.0	2.0	3.0	3.0	3.0	6.5	6.5	6.5	10.0	9.5	9.5
23	2.0	2.0	2.0	3.0	3.0	3.0	6.5	6.5	6.5	10.0	10.0	10.0
24	2.0	2.0	2.0	3.5	3.0	3.5	6.5	6.5	6.5	10.0	10.0	10.0
25	2.0	2.0	2.0	3.5	3.5	3.5	6.5	6.5	6.5	10.0	10.0	10.0
26	2.0	2.0	2.0	3.5	3.5	3.5	7.0	6.5	6.5	10.5	10.0	10.0
27	2.0	2.0	2.0	3.5	3.5	3.5	7.0	7.0	7.0	10.5	10.5	10.5
28	2.0	2.0	2.0	3.5	3.5	3.5	7.0	7.0	7.0	10.5	10.5	10.5
29	---	---	---	3.5	3.5	3.5	7.0	7.0	7.0	10.5	10.5	10.5
30	---	---	---	4.0	3.5	4.0	7.5	7.0	7.0	10.5	10.5	10.5
31	---	---	---	4.0	4.0	4.0	---	---	---	10.5	10.5	10.5
MONTH	2.5	2.0	2.0	4.0	2.0	3.0	7.5	4.0	5.5	10.5	7.5	9.0

12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10.5	10.5	10.5	13.5	12.0	12.5	17.0	15.5	16.0	18.5	18.5	18.5
2	10.5	10.5	10.5	13.0	12.5	12.5	16.5	15.5	16.0	18.5	18.5	18.5
3	10.5	10.5	10.5	13.0	12.5	12.5	16.5	15.5	16.0	18.5	18.5	18.5
4	10.5	10.5	10.5	13.5	12.5	12.5	17.0	16.0	16.0	18.5	18.5	18.5
5	10.5	10.5	10.5	13.5	12.5	13.0	17.0	16.0	16.0	18.5	18.5	18.5
6	10.5	10.5	10.5	14.0	13.0	13.0	17.0	16.0	16.0	18.5	18.5	18.5
7	11.0	10.5	11.0	14.0	13.0	13.0	17.0	16.0	16.5	18.5	18.5	18.5
8	11.0	11.0	11.0	14.0	13.0	13.0	17.5	16.5	16.5	19.0	18.5	18.5
9	11.0	11.0	11.0	14.0	13.0	13.0	19.0	16.5	17.0	19.0	19.0	19.0
10	11.0	11.0	11.0	13.5	13.0	13.0	19.0	18.0	18.5	19.0	18.5	19.0
11	11.0	11.0	11.0	14.0	13.0	13.0	18.5	17.5	18.0	18.5	18.5	18.5
12	11.5	11.0	11.0	14.0	13.5	13.5	18.0	18.0	18.0	18.5	18.5	18.5
13	11.0	11.0	11.0	14.5	13.0	13.5	18.0	17.5	18.0	18.5	18.5	18.5
14	11.5	11.0	11.0	15.0	13.5	13.5	18.0	18.0	18.0	18.5	18.5	18.5
15	11.5	11.0	11.5	15.0	13.5	14.0	18.0	17.5	17.5	18.5	18.0	18.5
16	11.5	11.0	11.5	14.5	13.5	14.0	17.5	17.5	17.5	18.0	18.0	18.0
17	12.0	11.5	11.5	14.5	13.5	13.5	17.5	17.5	17.5	18.0	18.0	18.0
18	12.0	11.0	11.5	14.0	14.0	14.0	17.5	17.5	17.5	18.0	18.0	18.0
19	12.5	11.0	11.5	14.5	13.5	14.0	18.0	17.5	17.5	18.0	18.0	18.0
20	12.5	11.0	11.5	14.5	14.0	14.0	18.0	18.0	18.0	18.0	18.0	18.0
21	12.0	11.5	11.5	14.5	14.0	14.0	18.0	18.0	18.0	18.0	18.0	18.0
22	12.5	11.5	12.0	15.0	14.0	14.5	18.0	18.0	18.0	18.0	18.0	18.0
23	13.0	11.5	12.0	15.0	14.5	14.5	18.0	18.0	18.0	18.0	18.0	18.0
24	12.5	11.5	12.0	17.5	14.5	15.5	18.0	18.0	18.0	18.0	17.5	17.5
25	12.5	11.5	12.0	16.0	14.5	15.0	18.0	18.0	18.0	17.5	17.5	17.5
26	12.5	11.5	12.0	15.0	15.0	15.0	18.0	18.0	18.0	17.5	17.5	17.5
27	12.5	12.0	12.0	15.5	15.0	15.0	18.0	18.0	18.0	17.5	17.0	17.5
28	13.0	12.0	12.0	15.5	15.0	15.0	18.0	18.0	18.0	17.0	17.0	17.0
29	13.5	12.0	12.5	15.5	15.5	15.5	18.0	18.0	18.0	17.0	17.0	17.0
30	13.5	12.0	12.5	16.0	15.5	15.5	18.5	18.0	18.0	17.0	17.0	17.0
31	---	---	---	16.0	15.5	15.5	18.5	18.5	18.5	---	---	---
MONTH	13.5	10.5	11.5	17.5	12.0	14.0	19.0	15.5	17.5	19.0	17.0	18.0
YEAR	19.0	2.0	10.0									

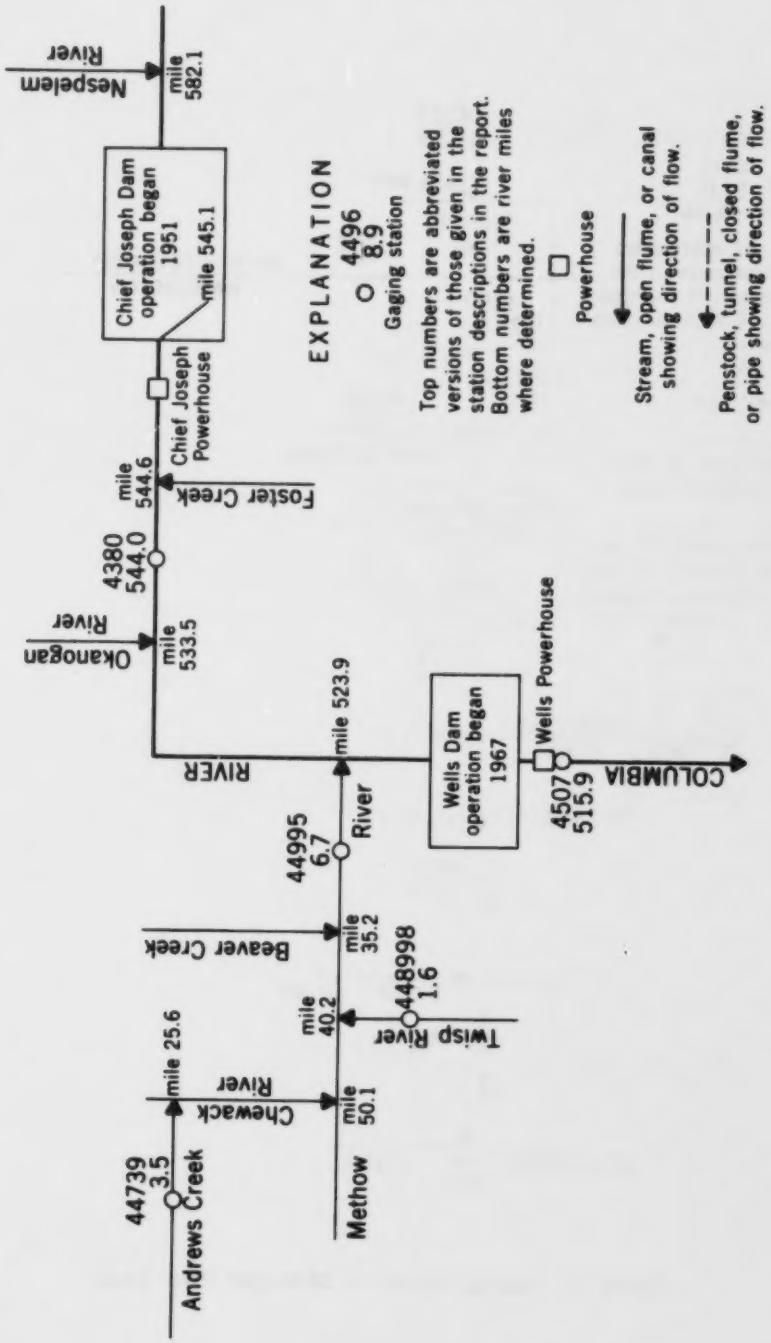

Figure 10. Gaging stations in Columbia River basin from Chief Joseph to Wells Dam.

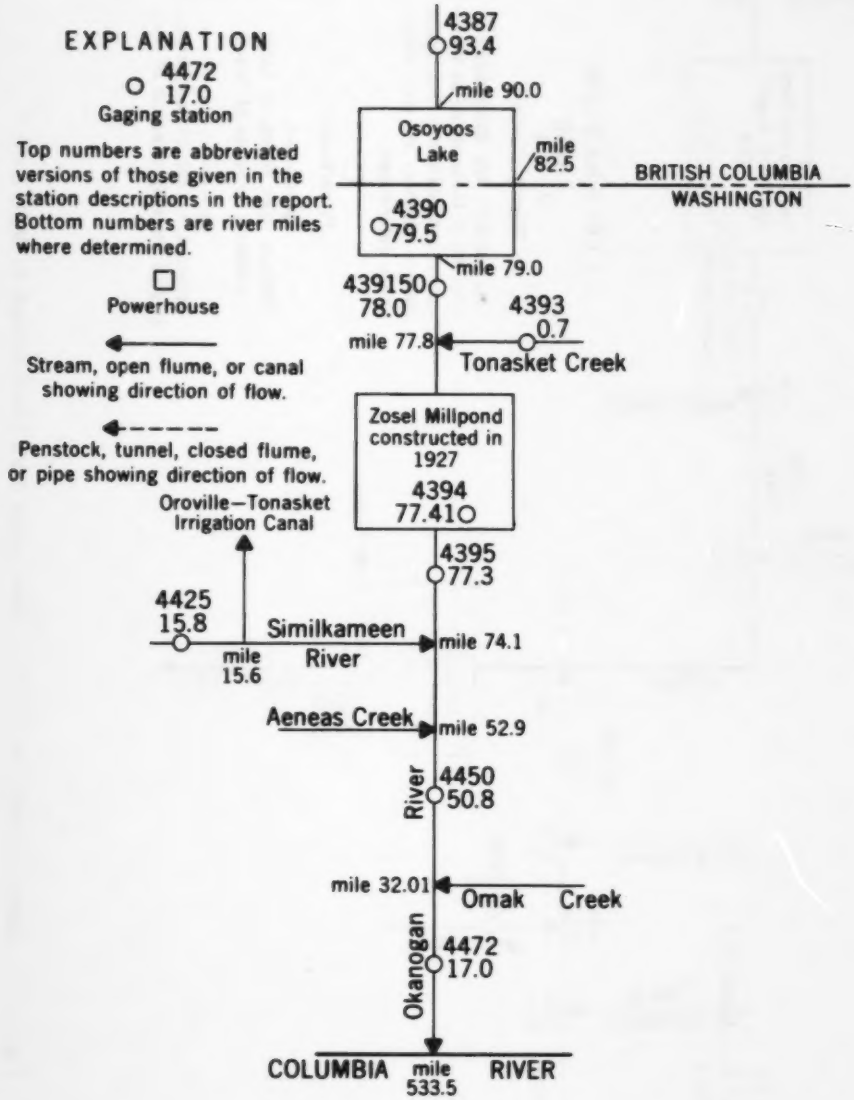

Figure 11. Gaging stations in Okanogan River basin.

12438000 COLUMBIA RIVER AT BRIDGEPORT, WA

LOCATION.--Lat 48°00'24", long 119°39'51", in SW¼SW¼ sec.14, T.29 N., R.25 E., Douglas County, Hydrologic Unit 17020005, on left bank at Bridgeport, 1.0 mi (1.6 km) downstream from Foster Creek, 1.1 mi (1.8 km) downstream from Chief Joseph Dam, and at mile 544.0 (875.3 km).

DRAINAGE AREA.--75,700 mi^2 (196,100 km^2), approximately.

PERIOD OF RECORD.--April 1952 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Since May 26, 1967, auxiliary water-stage recorder 4,800 ft (1,460 m) upstream from base gage at same datum.

REMARKS.--Records fair. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km^2) in the United States and an additional 35,000 acres (142 km^2) in Canada.

AVERAGE DISCHARGE.--26 years, 114,400 ft^3/s (3,240 m^3/s), 82,880,000 acre-ft/yr (102,000 hm^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 495,800 ft^3/s (14,000 m^3/s) June 11, 1961; maximum elevation, 792.20 ft (241.463 m) June 7, 1956; minimum observed discharge, 4,200 ft^3/s (120 m^3/s) Mar. 22, 1966, elevation, 746.91 ft (227.658 m); minimum daily discharge, 22,300 ft^3/s (632 m^3/s) Nov. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 156,000 ft^3/s (4,420 m^3/s) Sept. 9; minimum daily discharge, 36,100 ft^3/s (1,020 m^3/s) Oct. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51900	80700	90100	67000	126000	106000	116000	122000	114000	64400	85300	95800
2	49500	72900	52600	88400	132000	113000	107000	131000	97500	79600	82900	82400
3	87300	92000	43400	105000	115000	118000	108000	147000	69700	78900	99600	81500
4	70700	78800	45100	86400	109000	105000	128000	140000	56600	53300	93000	82500
5	73200	53600	71200	96100	64900	86000	134000	145000	87700	86100	102000	104000
6	79000	57000	72000	107000	100000	91400	131000	140000	70600	110000	89500	125000
7	64500	76900	82900	77500	82100	85400	134000	94600	102000	113000	102000	134000
8	58300	90300	84200	79000	88400	76000	126000	125000	98500	128000	110000	147000
9	51700	80500	84700	94400	84700	82600	114000	134000	115000	102000	106000	156000
10	67600	61900	81300	113000	98700	84400	136000	140000	114000	133000	104000	137000
11	71500	76600	76200	115000	67200	60500	138000	138000	112000	122000	104000	113000
12	69000	59100	79400	106000	79100	55200	141000	141000	113000	133000	98100	129000
13	57800	47600	73600	97000	106000	90700	137000	131000	110000	143000	86000	118000
14	67000	82600	71600	93500	112000	82400	142000	118000	109000	149000	105000	109000
15	43200	92600	78200	89300	111000	91000	140000	131000	102000	139000	94000	118000
16	42800	98500	82300	89600	114000	86000	139000	138000	95900	115000	86800	92100
17	79600	101000	73800	88000	113000	67100	141000	134000	96800	114000	87700	91500
18	75100	100000	60080	86700	94500	62300	140000	126000	94000	129000	87700	104000
19	70800	95700	85800	93400	61800	50900	142000	124000	95600	125000	84000	97300
20	84300	87800	88000	100000	108000	90600	141000	130000	92600	132000	85700	104000
21	72400	112000	92300	80300	118000	83800	144000	132000	85000	132000	89100	117000
22	53100	103000	87800	87600	118000	94600	122000	136000	84000	118000	85900	95900
23	37700	96000	79400	110000	122000	111000	122000	127000	91500	114000	85700	71600
24	60800	70100	42600	122000	122000	108000	130000	136000	93600	123000	88800	65300
25	66600	70900	41500	120000	102000	101000	136000	140000	69600	110000	90400	93700
26	70000	57200	68700	123000	66300	71100	127000	137000	94800	107000	87200	90600
27	86300	39700	96800	123000	114000	108000	143000	142000	98000	113000	66000	95400
28	75300	61300	93200	101000	108000	110000	136000	142000	98700	113000	86300	97500
29	46700	68400	81600	95400	---	87500	133000	143000	105000	111000	82900	109000
30	36100	88300	77000	128000	---	97400	96500	136000	90300	111000	76400	110000
31	70600	---	72400	126000	---	116000	---	118000	---	94900	96700	---
TOTAL	1990400	2353000	2309700	3084400	2821700	2781700	3918500	4110600	2852000	3498200	2818700	3147100
MEAN	64210	78430	74510	99500	100800	89730	130600	132600	95070	112800	90930	104900
MAX	87300	112000	96800	128000	132000	118000	144000	147000	114000	149000	110000	156000
MIN	36100	39700	41500	67800	61800	50900	96500	94600	56600	53300	66000	61500
AC-FT	3948000	4667000	4581000	6118000	5597000	5518000	7772000	8153000	5657000	6923000	5591000	6242000

CAL YR 1977 TOTAL 28714000 MEAN 78670 MAX 153000 MIN 31100 AC-FT 56950000
WTR YR 1978 TOTAL 35678000 MEAN 97750 MAX 156000 MIN 36100 AC-FT 70770000

12438700 OKANAGAN RIVER NEAR OLIVER, BRITISH COLUMBIA
(International gaging station)

LOCATION.--Lat 49°06'53", long 119°33'50", approximately 75 ft (23 m) upstream from drop structure No. 3, 0.8 mi (1.3 km) downstream from Testalinden Creek, 4.2 mi (6.8 km) south of Oliver, and at mile 93.4 (150.3 km).

DRAINAGE AREA.--2,930 mi^2 (7,590 km^2).

PERIOD OF RECORD.--October 1961 to current year in reports of Geological Survey. March 1944 to December 1948 and April 1952 to September 1961 in reports of Department of Northern Affairs and National Resources, Canada.

GAGE.--Water-stage recorder.

REMARKS.--Records good. Regulation by control dams at outlets of Okanagan and Skaha Lakes. Diversion for irrigation.

COOPERATION.--This station is maintained by Canada under agreement with the United States subsequent to Feb. 14, 1965.

AVERAGE DISCHARGE.--28 years (water years 1945-47, 1953-56, 1958-78), 610 ft^3/s (17.28 m^3/s), 441,900 acre-ft/yr (545 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,130 ft^3/s (88.6 m^3/s) May 27, 1974, gage height, 7.07 ft (2.155 m); minimum, 55.9 ft^3/s (1.58 m^3/s) Jan. 30, 1963, gage height, 0.63 ft (0.192 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,470 ft^3/s (70.0 m^3/s) May 22, gage height, 6.21 ft (1.893 m); minimum daily, 173 ft^3/s (4.90 m^3/s) Jan. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	377	277	183	180	420	638	928	1020	1490	655	357	534
2	382	271	194	178	421	313	912	1050	1440	653	348	537
3	379	254	191	179	499	464	868	1000	1190	631	334	515
4	397	237	188	177	870	663	821	773	1090	621	332	520
5	417	237	188	177	893	949	831	610	1080	536	339	520
6	410	231	188	178	913	1000	855	462	1050	456	338	509
7	410	227	186	178	954	991	757	481	965	371	342	512
8	410	252	186	179	963	981	633	655	988	424	345	485
9	412	246	183	179	966	985	598	1250	1100	401	347	463
10	409	216	185	179	967	978	554	1390	1100	403	336	469
11	403	215	184	176	969	973	630	1540	1080	415	341	471
12	365	214	186	174	969	968	810	1810	1070	401	359	448
13	349	211	186	174	972	980	795	1990	1140	392	376	440
14	348	210	187	173	971	975	654	2100	1160	383	387	434
15	348	214	188	174	957	964	631	2190	1090	386	409	435
16	348	214	186	175	954	970	629	2220	952	404	439	457
17	358	213	188	175	955	973	635	2160	878	416	449	473
18	410	211	187	175	957	965	632	2100	817	410	451	465
19	424	210	188	175	956	964	643	2130	758	399	454	453
20	394	206	188	265	954	972	618	2240	712	388	442	460
21	384	206	187	500	954	964	594	2370	670	380	424	541
22	372	197	187	524	967	934	596	2410	567	366	406	571
23	363	189	186	514	979	722	605	2220	532	345	401	580
24	370	180	186	476	974	513	641	2090	534	346	395	586
25	368	180	185	438	974	540	697	2010	515	357	409	587
26	374	179	185	440	981	584	752	1990	475	378	405	585
27	381	179	184	435	986	434	833	1980	398	403	393	569
28	380	179	184	428	976	401	934	1980	371	396	385	559
29	384	175	185	420	---	650	1050	1860	455	376	400	561
30	386	177	182	416	---	933	1050	1550	663	368	488	559
31	353	---	180	417	---	945	---	1540	---	364	491	---
TOTAL	11865	6407	5771	8628	25273	25206	22186	51171	26330	13224	12122	15298
MEAN	383	214	186	278	903	813	740	1651	878	427	391	510
MAX	424	277	194	524	986	1000	1050	2410	1490	655	491	587
MIN	348	175	180	173	420	313	554	462	371	345	332	434
AC-FT	23530	12710	11450	17110	50130	50000	44010	101500	52230	26230	24040	30340

CAL YR 1977 TOTAL 104048 MEAN 285 MAX 648 MIN 175 AC-FT 206400
WTR YR 1978 TOTAL 223481 MEAN 612 MAX 2410 MIN 173 AC-FT 443300

12439000 OSOYOOS LAKE NEAR OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°57'24", long 119°26'18", in NW¼NE¼ sec.21, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on west shore 1 mi (1.6 km) north of Oroville, 3 mi (4.8 km) south of international boundary, and at mile 79.5 (127.9 km).

DRAINAGE AREA.--3,132 mi^2 (8,112 km^2).

PERIOD OF RECORD.--July 1928 to current year.

REVISED RECORDS.--WSP 1346: Drainage area. WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 2, 1928, nonrecording gage and Sept. 2, 1928, to Nov. 9, 1929, water-stage recorder, 100 ft (30 m) south of international boundary, Nov. 10, 1929, to Sept. 7, 1930, Mar. 22, 1952, to Sept. 23, 1953, June 25, 1955, to Apr. 11, 1956, nonrecording gage and Sept. 8, 1930, to Mar. 21, 1952, Sept. 24, 1953, to June 24, 1955, Apr. 12, 1956, to Feb. 7, 1969, water-stage recorder at site 1 mi (1.6 km) south of international boundary. All elevations prior to Oct. 1, 1944, at datum 2.39 ft (0.728 m) lower. To convert from present datum to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft (0.497 m); to convert from present datum to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.079 m).

REMARKS.--Approximately 44,000 acres (1,780 hm^2) are irrigated above station in Canada. Elevation may occasionally be affected by dam at Zosel's mill in Oroville.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 917.11 ft (279.535 m) June 2, 3, 1972; minimum 908.82 ft (277.008 m), present datum, Oct. 14, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 29, 1894, reached an elevation of 918.8 ft ±0.5 ft (280.05 m ±0.15 m), present datum, 1 mi (1.6 km) below present lake outlet, from floodmark on old Okanogan Hotel Building, pointed out in 1930 by Mr. and Mrs. Stansbury, who kept a diary and operated the hotel in 1894.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 912.92 ft (278.258 m) May 23; minimum, 910.35 ft (277.475 m) Apr. 24, 25.

ELEVATION, IN FEET ABOVE NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	912.03	911.61	910.75	910.68	910.72	911.18	910.73	910.78	912.34	910.75	911.01	911.34
2	912.00	911.59	910.75	910.68	910.72	911.08	910.88	910.85	912.24	910.91	910.99	911.35
3	911.96	911.54	910.76	910.68	910.67	910.84	910.85	910.91	912.12	911.05	910.96	911.38
4	911.92	911.47	910.75	910.68	910.65	910.73	910.90	910.94	911.98	911.17	910.95	911.41
5	911.90	911.42	910.74	910.68	910.70	910.72	910.93	910.90	911.92	911.27	910.93	911.42
6	911.89	911.35	910.72	910.68	910.77	910.78	910.96	910.77	911.98	911.36	910.89	911.46
7	911.88	911.31	910.74	910.67	910.85	910.85	910.97	910.64	912.11	911.40	910.87	911.49
8	911.87	911.24	910.72	910.67	910.93	910.91	910.93	910.54	912.16	911.43	910.88	911.47
9	911.86	911.20	910.71	910.67	910.98	910.95	910.87	910.63	912.17	911.49	910.90	911.45
10	911.84	911.16	910.68	910.67	911.04	910.98	910.80	910.84	912.12	911.48	910.91	911.43
11	911.83	911.12	910.68	910.66	911.07	911.01	910.75	911.08	912.00	911.49	910.90	911.42
12	911.81	911.09	910.68	910.65	911.10	911.04	910.73	911.33	911.88	911.49	910.92	911.38
13	911.79	911.05	910.69	910.65	911.13	911.07	910.77	911.58	911.79	911.50	910.94	911.34
14	911.77	911.02	910.72	910.64	911.16	911.09	910.74	911.83	911.72	911.58	910.96	911.31
15	911.74	911.00	910.75	910.63	911.18	911.10	910.67	912.11	911.65	911.44	911.02	911.28
16	911.72	910.98	910.75	910.64	911.20	911.09	910.63	912.33	911.58	911.40	911.09	911.22
17	911.70	910.96	910.76	910.64	911.21	911.10	910.58	912.49	911.48	911.37	911.13	911.20
18	911.70	910.94	910.75	910.64	911.22	911.11	910.54	912.54	911.38	911.32	911.18	911.17
19	911.71	910.92	910.74	910.64	911.23	911.11	910.51	912.58	911.24	911.26	911.24	911.12
20	911.71	910.86	910.72	910.64	911.24	911.11	910.48	912.63	911.12	911.22	911.30	911.09
21	911.70	910.85	910.72	910.71	911.25	911.12	910.45	912.70	911.02	911.16	911.34	911.09
22	911.68	910.83	910.73	910.81	911.25	911.12	910.41	912.82	910.91	911.12	911.38	911.09
23	911.66	910.80	910.74	910.89	911.26	911.09	910.38	912.90	910.77	911.08	911.40	911.12
24	911.65	910.76	910.74	910.88	911.25	911.09	910.36	912.89	910.65	911.04	911.42	911.15
25	911.63	910.76	910.74	910.85	911.24	910.88	910.37	912.84	910.57	911.02	911.41	911.18
26	911.63	910.77	910.74	910.83	911.23	910.79	910.38	912.79	910.49	911.01	911.41	911.22
27	911.62	910.76	910.74	910.80	911.22	910.70	910.43	912.75	910.44	911.03	911.39	911.25
28	911.61	910.74	910.74	910.78	911.21	910.60	910.50	912.74	910.41	911.04	911.37	911.26
29	911.63	910.74	910.73	910.76	---	910.53	910.60	912.73	910.44	911.03	911.35	911.27
30	911.64	910.74	910.71	910.72	---	910.57	910.70	912.63	910.58	911.03	911.33	911.28
31	911.64	---	910.69	910.73	---	910.66	---	912.47	---	911.03	911.32	---
MEAN	911.77	911.05	910.73	910.71	911.06	910.93	910.66	911.89	911.44	911.22	911.13	911.29
MAX	912.03	911.61	910.76	910.89	911.26	911.18	910.97	912.90	912.34	911.58	911.42	911.49
MIN	911.61	910.74	910.68	910.63	910.65	910.53	910.36	910.54	910.41	910.75	910.87	911.09

CAL YR 1977 MEAN 911.72 MAX 912.90 MIN 909.93
WTR YR 1978 MEAN 911.16 MAX 912.90 MIN 910.36

12439150 OKANOGAN RIVER AT BRIDGE STREET, AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°56'20", long 119°25'36", in SW¼NW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on right bank 15 ft (5 m) upstream from Cherry Street bridge in Oroville, 700 ft (213 m) upstream from Tonasket Creek, 1.0 mi (1.6 km) downstream from Osoyoos Lake, and at mile 78.0 (125.5 km).

DRAINAGE AREA.--3,133 m^2 (8,114 km^2).

WATER-ELEVATION RECORDS

PERIOD OF RECORD.-- October 1942 to September 1964 (annual maximum and minimum gage heights only published in WSP 1935), October 1964 to current year (gage heights only). April 1939 to November 1944 (fragmentary) and December 1944 to September 1964 gage heights available in file of district office.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Nov. 14, 1944, nonrecording gage and Nov. 15, 1944 to Sept. 30, 1945, water-stage recorder at present site at datum 897.61 ft (273.592 m) higher and Oct. 1, 1945 to Sept. 30, 1975, at datum 900.00 ft (274.320 m) higher. To convert to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft (0.497 m); to convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey of Canada, subtract 0.26 ft (0.079 m).

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation recorded, 916.99 ft (279.499 m) June 2, 1972; minimum recorded, 907.30 ft (276.545 m) Mar. 3, 4, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 912.40 ft (278.100 m) May 25; minimum, 909.98 ft (277.362 m), Apr. 22.

ELEVATION, IN FEET ABOVE NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	911.96	911.55	910.68	910.64	910.80	910.86	910.67	910.42	911.85	910.69	910.95	911.24
2	911.93	911.51	910.70	910.62	910.55	910.73	910.54	910.58	911.72	910.87	910.93	911.25
3	911.89	911.46	910.70	910.63	910.41	910.54	910.58	910.59	911.63	911.08	910.96	911.28
4	911.86	911.41	910.69	910.63	910.36	910.41	910.64	910.69	911.58	911.11	910.88	911.31
5	911.84	911.36	910.69	910.64	910.41	910.37	910.67	910.68	911.68	911.21	910.87	911.33
6	911.82	911.27	910.67	910.64	910.47	910.42	910.70	910.62	911.87	911.38	910.82	911.35
7	911.80	911.26	910.66	910.63	910.56	910.51	910.70	910.28	912.03	911.34	910.83	911.36
8	911.79	911.17	910.63	910.63	910.63	910.57	910.69	910.24	912.02	911.37	910.84	911.32
9	911.78	911.13	910.66	910.63	910.68	910.61	910.61	910.47	911.95	911.44	910.85	911.30
10	911.76	911.10	910.63	910.63	910.73	910.64	910.54	910.63	911.81	911.42	910.87	911.29
11	911.75	911.05	910.63	910.62	910.77	910.67	910.51	910.87	911.58	911.45	910.86	911.28
12	911.73	911.03	910.64	910.61	910.80	910.69	910.48	911.05	911.45	911.45	910.89	911.24
13	911.72	910.99	910.65	910.61	910.83	910.70	910.46	911.23	911.35	911.45	910.98	911.21
14	911.70	910.96	910.67	910.61	910.86	910.73	910.38	911.46	911.28	911.42	910.92	911.17
15	911.67	910.93	910.69	910.60	910.88	910.75	910.31	911.70	911.21	911.34	910.98	911.15
16	911.66	910.92	910.70	910.60	910.89	910.75	910.26	911.88	911.14	911.30	911.05	911.09
17	911.66	910.91	910.71	910.60	910.90	910.76	910.22	911.99	911.03	911.27	911.09	911.10
18	911.63	910.90	910.70	910.60	910.92	910.78	910.18	912.01	910.97	911.23	911.13	911.07
19	911.64	910.90	910.69	910.60	910.93	910.78	910.15	912.05	910.82	911.16	911.19	911.02
20	911.64	910.82	910.66	910.59	910.93	910.78	910.12	912.09	910.71	911.12	911.25	910.98
21	911.64	910.81	910.67	910.65	910.94	910.80	910.09	912.18	910.62	911.06	911.29	910.98
22	911.62	910.80	910.68	910.76	910.95	910.80	910.03	912.32	910.52	911.01	911.32	910.97
23	911.59	910.76	910.73	910.79	910.95	910.78	910.02	912.38	910.46	910.98	911.33	911.00
24	911.59	910.71	910.70	910.74	910.92	910.68	910.02	912.34	910.29	910.95	911.33	911.03
25	911.56	910.70	910.69	910.71	910.91	910.56	910.02	912.27	910.19	910.94	911.31	911.07
26	911.57	910.71	910.69	910.69	910.89	910.49	910.04	912.22	910.19	910.94	911.31	911.11
27	911.56	910.70	910.69	910.67	910.88	910.43	910.09	912.18	910.22	910.96	911.30	911.13
28	911.55	910.68	910.68	910.66	910.88	910.32	910.16	912.19	910.27	910.97	911.28	911.15
29	911.57	910.70	910.69	910.63	---	910.25	910.25	912.23	910.39	910.96	911.25	911.16
30	911.56	910.68	910.68	910.62	---	910.31	910.35	912.11	910.53	910.96	911.23	911.17
31	911.57	---	910.65	910.61	---	910.39	---	911.93	---	910.97	911.22	---
MEAN	911.70	911.00	910.68	910.64	910.77	910.61	910.34	911.47	911.11	911.15	911.07	911.17
MAX	911.96	911.55	910.73	910.79	910.95	910.86	910.70	912.38	912.03	911.45	911.33	911.36
MIN	911.55	910.68	910.63	910.59	910.36	910.25	910.02	910.24	910.19	910.69	910.82	910.97

CAL YR 1977 MEAN 911.67 MAX 912.86 MIN 909.74
WTR YR 1978 MEAN 910.98 MAX 912.38 MIN 910.02

12439150 OKANOGAN RIVER AT BRIDGE STREET AT OROVILLE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-1970, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1959 to September 1960.
pH: July 1959 to September 1960.
WATER TEMPERATURE: July 1959 to September 1960.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is good. Records collected at same site prior to October 1970 was published as 12439500 "Okanogan River at Oroville."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)
OCT , 1977								
26...	1310	480	320	8.5	12.6	15	1	12.1
NOV								
16...	1250	307	310	8.3	7.7	--	--	11.6
DEC								
14...	1155	229	323	8.2	2.2	10	1	12.5
JAN , 1978								
11...	1100	229	285	8.2	1.3	15	1	14.7
FEB								
22...	1140	972	335	7.9	3.5	10	1	14.4
MAR								
15...	1215	993	325	8.3	4.6	15	2	15.9
APR								
12...	1115	797	308	8.5	9.3	10	4	12.6
MAY								
10...	1200	989	290	8.6	15.0	5	1	11.4
JUN								
07...	1150	568	269	8.5	20.4	25	5	10.2
JUL								
12...	1310	311	265	8.6	22.0	10	2	10.1
AUG								
23...	1145	345	267	8.5	20.3	15	2	8.1
SEP								
13...	1145	625	262	8.3	18.6	10	2	8.8

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977								
26...	.00	.00	.04	.32	.36	.02	.00	.00
NOV								
16...	.01	.00	.05	.32	.37	.01	.00	.00
DEC								
14...	.05	.00	.03	.24	.27	.02	.00	.00
JAN , 1978								
11...	.06	.00	.12	.44	.56	.02	.01	.03
FEB								
22...	.06	.00	.07	.30	.37	.02	.00	.00
MAR								
15...	.02	.00	.04	.34	.38	.02	.00	.00
APR								
12...	.01	.00	.06	.40	.46	.02	.00	.00
MAY								
10...	.01	.00	.04	.32	.36	.02	.00	.00
JUN								
07...	.00	.00	.04	.30	.34	.02	.01	.03
JUL								
12...	.02	.00	.10	.63	.73	.02	.01	.03
AUG								
23...	.01	.00	.08	.30	.38	.03	.00	.00
SEP								
13...	.00	.00	.05	.29	.34	.01	.00	.00

12439500 TONASKET CREEK AT OROVILLE, WA

LOCATION.--Lat 48°56'55", long 119°24'45", in NW¼NE¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank 7 ft (2.1 m) downstream from road bridge, 1.0 mi (1.6 km) northeast of Oroville, and 0.7 mi (1.1 km) above mouth.

DRAINAGE AREA.--60.1 mi² (155.7 km²).

PERIOD OF RECORD.--March 1967 to current year.

REVISED RECORDS.--WRD Wash. 1975: 1972(M).

GAGE.--Water-stage recorder. Altitude of gage is 960 ft (293 m), from topographic map.

REMARKS.--Records good except those for periods of no gage-height record, which are poor. Two small diversions for irrigation of 45 acres (182,000 m²) above station.

AVERAGE DISCHARGE.--11 years, 2.07 ft³/s (0.0756 m³/s) 0.00 in/yr (15 mm/yr), 1,030 acre-ft/yr (2.16 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 455 ft³/s (12.9 m³/s) Feb. 27, 1973, gage height, 5.67 ft (1.007 m), from rating curve extended above 50 ft³/s (1.42 m³/s) on basis of slope-area measurement of peak flow; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (0.850 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 7	1900	*28	0.793	*4.00	1.219

Minimum discharge, no flow Oct. 14 to Nov. 23, Nov. 25 to Dec. 15, Dec. 17-26, Dec. 31 to Jan. 7, Jan. 12 to Feb. 6, Feb. 16-18, Feb. 28 to Mar. 3, and Sept. 2-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	.00	.00	.00	.00	.00	7.8	12	3.7	.03	2.5	.30
2	1.4	.00	.00	.00	.00	.00	7.4	12	3.5	.09	1.6	.00
3	1.4	.00	.00	.00	.00	.00	8.5	12	3.6	2.0	1.7	.00
4	1.4	.00	.00	.00	.00	.10	8.5	12	3.6	2.4	1.8	.00
5	1.4	.00	.00	.00	.00	.28	10	10	2.8	2.3	1.8	.00
6	1.4	.00	.00	.00	.00	1.0	8.5	8.9	2.3	1.8	1.6	.10
7	1.5	.00	.00	.00	6.6	7.0	7.8	8.5	2.3	1.3	1.8	1.1
8	1.4	.00	.00	.75	8.5	6.5	8.1	7.8	2.0	.96	1.8	1.8
9	1.5	.00	.00	.24	3.5	6.0	8.1	7.8	2.3	.95	1.5	2.8
10	1.5	.00	.00	.03	1.8	5.5	8.5	7.4	2.5	.95	1.3	2.8
11	1.7	.00	.00	.01	1.2	3.4	8.5	6.5	2.1	.99	1.9	3.9
12	2.0	.00	.00	.00	.80	3.0	8.5	6.5	2.4	1.4	1.9	4.1
13	2.0	.00	.00	.00	.40	1.5	8.5	6.5	2.0	.91	1.2	3.9
14	1.1	.00	.03	.00	.20	1.2	8.5	8.1	2.0	.72	1.7	3.7
15	.00	.00	.05	.00	.10	1.0	8.5	8.5	1.3	.76	2.7	3.7
16	.00	.00	.01	.00	.00	1.0	10	9.7	1.4	.72	2.3	3.5
17	.00	.00	.00	.00	.00	1.5	11	8.6	1.1	.87	2.1	2.7
18	.00	.00	.00	.00	.00	3.0	11	7.8	.76	.63	1.9	2.3
19	.00	.00	.00	.00	.10	6.0	12	7.4	.69	.36	1.7	3.5
20	.00	.00	.00	.00	.20	7.0	12	6.8	1.1	.42	1.2	3.4
21	.00	.00	.00	.00	.20	9.0	12	6.8	1.3	.65	.83	3.4
22	.00	.00	.00	.00	.20	7.0	10	6.2	.99	.66	.66	3.7
23	.00	.00	.00	.00	.20	4.5	9.7	5.6	.76	.95	.60	3.5
24	.00	.01	.00	.00	.20	8.0	10	5.1	.69	.67	.57	3.7
25	.00	.00	.00	.00	.20	14	9.7	5.1	.57	.52	.26	3.7
26	.00	.00	.00	.00	.30	12	11	4.9	.34	.52	.17	2.4
27	.00	.00	.02	.00	.20	10	13	5.1	.47	.66	.09	2.1
28	.00	.00	.14	.00	.00	9.0	13	5.1	.44	.63	.30	2.3
29	.00	.00	.06	.00	---	8.0	13	4.6	.34	.69	.63	2.4
30	.00	.00	.09	.00	---	9.7	13	4.1	.42	.52	.49	2.4
31	.00	---	.00	.00	---	8.9	---	3.7	---	1.7	.79	---
TOTAL	21.10	.01	.40	1.03	24.90	155.50	296.1	231.1	59.17	29.27	41.59	73.26
MEAN	.68	.000	.013	.033	.89	5.02	9.87	7.45	1.67	.94	1.34	2.44
MAX	2.0	.01	.14	.75	8.5	14	13	12	3.7	2.4	2.7	4.1
MIN	.00	.00	.00	.00	.00	.00	7.4	3.7	.34	.36	.09	.00
CFSM	.01	.000	.000	.001	.02	.08	.16	.12	.03	.02	.02	.04
IN.	.01	.00	.00	.00	.02	.10	.18	.14	.03	.02	.03	.05
AC-FT	42	.02	.8	2.0	49	308	587	458	118	58	82	145

CAL YR 1977 TOTAL 208.83 MEAN .57 MAX 7.0 MIN .00 CFSM .009 IN .13 AC-FT 414
WTR YR 1978 TOTAL 924.43 MEAN 2.53 MAX 14 MIN .00 CFSM .04 IN .57 AC-FT 1830

NOTE:--No gage-height record Feb. 9 to Mar. 29.

12439400 OKANOGAN RIVER AT ZOSEL MILLPOND, AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°55'55", long 119°25'05", in SE¼SW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank in Oroville, 0.4 mi (0.6 km) downstream from Tonasket Creek, 1.6 mi (2.6 km) downstream from Osoyoos Lake and at mile 77.41 (124.55 km).

DRAINAGE AREA.--5,195 mi² (8,275 km²).

PERIOD OF RECORD.--October 1942 to September 1964 (annual maximum and minimum gage heights only, published in WSP 1933); October 1964 to current year (gage heights only). April 1939 to March 1944 (fragmentary) and April 1944 to September 1964 gage heights available in file of district office.

REVISED RECORDS.--WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 27, 1944, nonrecording gage and Mar. 28, 1944 to Sept. 30, 1945 water-stage recorder at present site at datum 897.61 ft (273.592 m) higher and Oct. 1, 1945 to Sept. 30, 1975, at datum 900.00 ft (274.320 m) higher. To convert to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft (0.497 m); to convert to 1967 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.079 m).

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD.--Maximum elevation recorded, 916.91 ft (279.474 m) June 2, 1972; minimum recorded,905.90 ft (276.118 m) Jan. 3, 1959, but may have been lower during period of no gage-height record Mar. 3 or 4, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 911.95 ft (277.962 m) June 7; minimum, 908.98 ft (277.057 m) June 26.

ELEVATION, IN FEET ABOVE NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	911.88	911.49	910.66	910.63	910.45	910.32	910.27	909.59	910.90	910.85	910.85	911.12
2	911.85	911.45	910.68	910.61	910.36	910.14	910.15	909.70	910.82	910.82	910.83	911.13
3	911.82	911.39	910.68	910.65	910.34	909.93	910.20	909.94	910.79	910.95	910.80	911.15
4	911.79	911.33	910.67	910.59	909.92	909.81	910.27	910.38	910.95	911.06	910.78	911.19
5	911.77	911.28	910.67	910.50	909.96	909.79	910.30	910.05	911.33	911.15	910.78	911.20
6	911.75	911.20	910.64	910.48	910.04	909.84	910.33	909.62	911.74	911.25	910.73	911.21
7	911.73	911.10	910.65	910.40	910.12	909.92	910.34	909.44	911.92	911.29	910.77	911.22
8	911.72	911.12	910.66	910.59	910.20	909.99	910.33	909.56	911.82	911.31	910.79	911.14
9	911.72	911.07	910.65	910.60	910.25	910.05	910.25	910.09	911.61	911.38	910.80	911.17
10	911.70	911.04	910.62	910.59	910.32	910.08	910.16	910.32	911.25	911.37	910.81	911.11
11	911.69	910.99	910.61	910.58	910.35	910.10	910.14	910.57	910.73	911.30	910.81	911.09
12	911.67	910.97	910.61	910.57	910.37	910.13	910.11	910.61	910.44	911.39	910.84	911.03
13	911.66	910.94	910.63	910.57	910.40	910.14	909.87	910.65	910.31	911.39	910.86	911.01
14	911.65	910.91	910.65	910.57	910.43	910.19	909.61	910.90	910.22	911.29	910.88	910.96
15	911.61	910.89	910.67	910.56	910.45	910.21	909.52	911.04	910.12	911.17	910.94	910.95
16	911.69	910.88	910.68	910.56	910.46	910.21	909.46	911.14	910.05	911.13	911.00	910.98
17	911.58	910.87	910.69	910.57	910.47	910.23	909.38	911.13	909.92	911.11	911.04	910.93
18	911.57	910.86	910.67	910.56	910.49	910.25	909.34	911.08	909.86	911.09	911.08	910.90
19	911.58	910.86	910.67	910.56	910.50	910.26	909.30	911.13	909.72	911.04	911.14	910.85
20	911.58	910.79	910.64	910.55	910.51	910.25	909.25	911.18	909.61	911.00	911.19	910.82
21	911.57	910.77	910.65	910.62	910.51	910.27	909.21	911.34	909.53	910.93	911.24	910.82
22	911.55	910.76	910.66	910.72	910.52	910.29	909.14	911.59	909.43	910.87	911.27	910.82
23	911.52	910.73	910.72	910.69	910.42	910.26	909.14	911.57	909.29	910.83	911.28	910.86
24	911.53	910.70	910.69	910.59	910.38	910.16	909.15	911.48	909.14	910.83	911.24	910.89
25	911.50	910.69	910.66	910.56	910.36	910.02	909.16	911.39	909.08	910.85	911.21	910.92
26	911.51	910.68	910.66	910.54	910.35	910.03	909.17	911.32	909.43	910.85	911.21	910.96
27	911.50	910.67	910.66	910.52	910.34	909.99	909.14	911.33	909.77	910.87	911.19	910.98
28	911.49	910.66	910.66	910.50	910.34	909.87	909.28	911.33	910.03	910.88	911.16	910.99
29	911.51	910.66	910.66	910.48	---	909.81	909.33	911.45	910.32	910.86	911.13	911.00
30	911.51	910.65	910.67	910.47	---	909.89	909.48	911.24	910.48	910.86	911.11	911.01
31	911.52	---	910.63	910.46	---	909.98	---	911.01	---	910.87	911.10	---
MEAN	911.63	910.95	910.66	910.57	910.33	910.08	909.68	910.76	910.35	911.06	911.00	911.01
MAX	911.88	911.49	910.72	910.72	910.52	910.32	910.34	911.59	911.92	911.39	911.28	911.22
MIN	911.49	910.65	910.61	910.46	909.92	909.79	909.14	909.44	909.08	910.85	910.73	910.82

CAL YR 1977 MEAN 911.63 MAX 912.81 MIN 909.38
WTR YR 1978 MEAN 910.88 MAX 911.92 MIN 909.98

12439500 OKANOGAN RIVER AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°55'51", long 119°25'09", in SE¼SW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank in Oroville, 70 ft (6 m) downstream from Burlington Northern trestle, 0.5 mi (0.8 km) downstream from Tonasket Creek, 1.7 mi (2.7 km) downstream from Osoyoos Lake, 3.2 mi (5.1 km) upstream from Similkameen River, and at mile 77.3 (124.4 km).

DRAINAGE AREA.--3,195 mi² (8,275 km²).

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 900.00 ft (274.370 m), National Geodetic Vertical Datum of 1929. Prior to Oct. 26, 1944, nonrecording gage at Zosel milldam 200 ft (61 m) upstream at same datum. Oct. 26, 1944, to Mar. 6, 1948, water-stage recorder on railroad trestle 20 ft (6 m) upstream at same datum. Auxiliary water-stage recorder 0.5 mi (0.8 km) downstream used during high-water periods since Apr. 10, 1948. May 15, 1946, to Apr. 9, 1948, auxiliary nonrecording gage at same site and datum. To convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.074 m).

REMARKS.--Records excellent. Diversions made to irrigate approximately 44,000 acres (17,800 hm²) in Canada and minor diversions in the United States above station. Natural regulation in several large lakes and artificial regulation in Okanogan Lake 46.7 mi (75.1 km) upstream for flood control and irrigation; also regulated by Zosel milldam at Oroville, 200 ft (61 m) above gage.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--36 years, 671 ft³/s (19.00 m³/s), 486,100 acre-ft/yr (599 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,730 ft³/s (106 m³/s) June 14, 1972; maximum gage height, 16.89 ft (5.148 m) June 2, 1972 (backwater from Similkameen River); minimum daily discharge, 2,270 ft³/s (64.5 m³/s) reverse flow May 29, 1948; minimum gage height, 5.98 ft (1.215 m) Mar. 1, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,250 ft³/s (63.7 m³/s) May 25, gage height, 9.65 ft (2.941 m); maximum gage height, 11.93 ft (3.636 m) June 6, result of backwater from Similkameen River; minimum discharge, 5.8 ft³/s (0.16 m³/s) Dec. 24, gage height, 5.27 ft (1.606 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	554	391	238	233	484	1000	777	1080	1900	154	328	505
2	544	425	242	229	530	930	799	1130	1760	165	328	505
3	528	481	242	233	677	860	815	1110	1520	180	311	515
4	517	469	238	234	721	811	837	1010	1240	203	311	525
5	507	449	238	235	740	811	851	1080	921	224	329	530
6	496	415	229	234	763	825	866	1105	644	250	386	540
7	496	410	233	230	792	867	873	1040	568	284	246	580
8	496	386	233	231	822	895	871	920	857	280	212	625
9	481	371	229	231	846	909	842	832	1160	292	212	625
10	486	362	221	229	872	923	810	989	1380	296	216	625
11	481	339	221	226	887	938	812	1080	1420	311	293	636
12	485	334	225	225	897	950	881	1180	1480	311	293	646
13	465	325	229	222	912	959	926	1360	1365	311	212	625
14	460	316	233	222	922	972	996	1470	1330	460	216	620
15	450	307	238	221	935	983	968	1690	1335	545	224	610
16	440	307	242	219	940	982	947	1850	1300	530	250	570
17	435	302	242	220	944	989	910	1970	1250	520	264	545
18	430	290	238	218	949	996	902	2020	1200	515	273	540
19	435	290	242	217	955	998	891	2060	1090	495	292	525
20	435	276	233	217	957	1010	872	2110	1040	485	311	520
21	430	272	233	233	961	1010	864	2080	981	460	325	520
22	420	267	238	257	964	1010	842	1960	905	445	335	520
23	410	259	230	393	1030	992	832	2050	836	440	360	525
24	410	246	145	522	1050	954	824	2170	766	390	453	530
25	400	246	230	514	1040	899	829	2210	766	330	505	540
26	400	246	242	507	1030	836	840	2180	710	325	505	550
27	395	238	242	501	1040	784	871	2100	590	330	495	555
28	391	233	242	496	1030	745	910	2090	330	330	510	560
29	400	238	242	493	---	717	968	2070	160	325	510	560
30	400	233	246	486	---	717	1030	2040	160	325	505	565
31	400	---	238	485	---	748	---	1950	---	325	495	---
TOTAL	14067	9721	7230	9413	24690	28020	26193	49741	39692	10804	10229	16837
MEAN	454	324	233	304	882	904	873	1605	1323	349	330	561
MAX	554	481	246	522	1050	1010	1030	2210	1900	545	510	646
MIN	391	233	145	217	484	717	777	832	160	154	293	505
AC-FT	27900	19280	14340	18670	48970	55580	51950	98660	68080	21430	20290	33400

CAL YR 1977 TOTAL 103663 MEAN 284 MAX 750 MIN 54 AC-FT 205600
WTR YR 1978 TOTAL 237620 MEAN 651 MAX 2210 MIN 145 AC-FT 471300

12442500 SIMILKAMEEN RIVER NEAR NIGHTHAWK, WA
(International gaging station)

LOCATION.--Lat 48°59'05", long 119°37'02", in NW¼ sec.7, T.40 N., R.26 E., Okanogan County, Hydrologic Unit 17020007, on left bank 1,000 ft (305 m) upstream from Oroville-Tonasket Irrigation District canal intake, 1.6 mi (2.6 km) northeast of Nighthawk, 5.8 mi (9.1 km) downstream from Palmer Creek, and at mile 15.8 (25.4 km).

DRAINAGE AREA.--3,550 mi² (9,190 km²), approximately.

PERIOD OF RECORD.--May 1911 to current year (prior to September 1928, mean monthly discharge included Oroville-Tonasket Irrigation District canal). Published as "near Oroville" 1911-28. Water temperatures January 1949 to September 1950, November 1961 to September 1970, at site 1.7 mi (2.7 km) upstream.

REVISED RECORDS.--WSP 1183: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,137.70 ft (346.771 m) National Geodetic Vertical Datum of 1929, international joint adjustment of 1947. Prior to Sept. 11, 1928, staff gages at sites 7 mi (11.3 km) downstream (below Oroville-Tonasket Irrigation District canal) at various datums.

REMARKS.--Records excellent. Flow at high stages regulated by natural diversion into and release from Palmer Lake. Several small diversions above station for irrigation of about 2,900 acres (1,170 hm²) in the United States in 1946 and approximately 10,500 acres (4,250 hm²) in Canada in 1957.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--67 years, 2,307 ft³/s (65.33 m³/s), 1,671,000 acre-ft/yr (2,060 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,800 ft³/s (1,300 m³/s) June 1, 1972; maximum gage height, 18.78 ft (5.724 m) May 31, 1972; minimum discharge, 65 ft³/s (1.84 m³/s) Jan. 3, 1974, gage height, 1.59 ft (0.485 m), result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,400 ft³/s (549 m³/s) June 6, gage height, 12.28 ft (3.743 m); minimum daily, 160 ft³/s (4.53 m³/s) Nov. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	311	456	960	290	355	415	2140	5230	7740	6450	1310	966
2	305	468	894	280	380	425	2130	5400	9190	5800	1230	1050
3	302	944	947	310	400	421	2030	6010	11500	5590	1170	1110
4	295	998	1260	334	436	393	1910	5870	14300	5420	1110	1100
5	290	732	1170	382	455	392	1840	5340	16700	5100	1050	1120
6	287	644	1020	423	470	402	1740	4960	18500	4800	1000	1210
7	284	588	925	468	532	431	1650	4740	18700	4480	954	1380
8	284	546	880	560	560	440	1600	4820	17800	4190	989	1500
9	284	514	590	597	548	432	1580	5430	16500	3890	864	1490
10	281	464	556	617	537	431	1550	6480	14900	3870	821	1480
11	293	471	539	637	510	439	1640	6760	12400	3680	792	1830
12	299	491	652	625	483	446	2080	6470	10900	3370	777	1850
13	296	511	912	611	470	450	2030	6280	10400	3130	851	1720
14	293	502	1050	606	444	440	2020	6410	9870	2890	853	1620
15	308	503	1090	625	446	434	1970	6750	8960	2740	804	1530
16	331	495	1080	653	449	429	1950	6810	8340	2630	862	1440
17	318	482	1050	660	442	424	1940	6720	7770	2950	971	1450
18	308	459	873	658	412	438	1870	6790	7760	2980	1100	1390
19	308	413	817	619	418	466	1830	7260	7660	2630	1060	1360
20	304	329	705	593	428	514	1838	8660	7260	2380	1080	1339
21	300	270	628	593	436	550	1920	10500	7300	2180	1040	1290
22	295	160	604	594	445	574	1930	11200	7460	2040	1020	1280
23	295	180	588	559	456	640	1950	11400	7310	1920	990	1280
24	295	220	590	527	472	726	1920	9960	7260	1810	947	1400
25	318	239	369	519	470	817	1940	8840	6910	1710	930	1470
26	550	301	320	516	464	944	2080	7950	6430	1620	935	1410
27	664	789	290	510	457	1070	2440	7410	6040	1630	898	1350
28	580	1060	280	503	432	1200	3680	7560	6830	1780	862	1320
29	520	1020	340	490	---	1490	4800	7790	6260	1660	839	1320
30	495	977	340	454	---	1740	5170	7300	6820	1510	813	1260
31	468	---	290	446	---	2000	---	7010	---	1390	840	---
TOTAL	10769	16937	22372	16262	12807	28413	65900	220130	304870	98300	29582	41386
MEAN	347	535	722	525	457	658	2167	7101	10160	3171	952	1380
MAX	664	1060	1260	668	560	2000	5170	11400	18700	6450	1310	1850
MIN	281	160	280	280	355	392	1550	4740	6830	1390	777	966
AC-FT	21360	31810	44370	32260	25400	48490	128900	436600	604700	195000	58520	82090

CAL YR 1977 TOTAL 423285 MEAN 1160 MAX 6960 MIN 160 AC-FT 839600
WTR YR 1978 TOTAL 457668 MEAN 2350 MAX 18700 MIN 160 AC-FT 1702000

12443600 Similkameen River at Oroville, Wash.

LOCATION.--Lat 48°56'05", long 119°26'27", in NE¼SW¼ sec.28, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020007, at 12th Avenue bridge at Oroville, 10.0 mi (16.1 km) east of Nighthawk, 10.8 mi (17.4 km) downstream from gaging station, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--3,590 mi² (9,300 km²), approximately.

PERIOD OF RECORD.--Water years 1949-50, 1967-1970 (partial-record station), 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: January 1949 to September 1950, October 1966 to September 1970.

REMARKS.--Water discharge from rating, discharge value is good. Temperature records collected January 1949 to September 1950, October 1966 to September 1970 at county bridge 12.5 mi (20.1 km) upstream and 1.7 mi (2.7 km) upstream from gaging station, published as 12442500 "near Nighthawk."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
OCT , 1977							
26...	1245	396	230	8.0	9.5	20	1
NOV							
16...	1230	534	198	7.7	5.6	15	1
DEC							
14...	1135	E1100	190	8.0	.6	15	2
JAN , 1978							
11...	1050	E800	211	8.2	.5	10	2
FEB							
22...	1120	436	290	7.7	4.5	5	1
MAR							
15...	1155	484	238	8.1	6.8	10	2
APR							
12...	1055	2140	172	7.9	9.0	15	8
MAY							
10...	1140	6140	120	8.0	9.2	50	5
JUN							
07...	1130	17500	70	7.6	10.0	85	50
JUL							
12...	1255	3310	115	7.9	15.6	5	4
AUG							
23...	1120	848	166	8.0	17.1	15	2
SEP							
13...	1130	1650	127	7.8	13.6	25	2

E Estimated.

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977						
26...	10.4	.00	.03	.00	.00	.00
NOV						
16...	13.6	.01	.04	.00	.00	.00
DEC						
14...	14.7	.05	.02	.01	.00	.00
JAN , 1978						
11...	15.2	.07	.06	.01	.00	.00
FEB						
22...	13.7	.00	.04	.01	.00	.00
MAR						
15...	12.8	.00	.01	.01	.00	.00
APR						
12...	12.3	.01	.07	.01	.00	.00
MAY						
10...	11.8	.01	.07	.04	.00	.00
JUN						
07...	11.9	.02	.04	.34	.01	.03
JUL						
12...	11.7	.02	.08	.02	.01	.03
AUG						
23...	9.5	.00	.03	.02	.00	.00
SEP						
13...	10.0	.00	.02	.01	.00	.00

12444700 AENEAS LAKE NEAR TONASKET, WA

LOCATION (REVISED).--Lat 48°40'32", long 119°30'35", in SE¼SW¼ sec.25, T.37 N., R.26 E., Okanogan County, Hydrologic Unit 17020006, at boat launching ramp on south shore 4.0 mi (6.4 km) southwest of Tonasket.

DRAINAGE AREA.--32.4 mi^2 (83.9 km^2).

PERIOD OF RECORD.--February 1964 to current year (fragmentary).

GAGE.--Nonrecording gage. Altitude of gage is 1,390 ft (424 m), from topographic map. Prior to Aug. 25, 1978, recording or nonrecording gages at several locations near present site, all at present datum.

REMARKS.--Pumping from lake and nearby ground-water wells during irrigation season. Diversion from Okanogan River into lake by pumping during irrigation season beginning June 1970.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 11.78 ft (3.590 m) Oct. 21, 1976; minimum observed, -10.68 ft (-3.255 m) Oct. 10, 16, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 10.60 ft (3.231 m) Sept. 29; minimum, 7.62 ft (2.323 m) Aug. 18.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---		---	---	---	9.69	---	9.92	9.60	---	---	7.96
2	---		---	9.27	9.45	---	9.81	9.92	---	8.50	8.28	---
3	---		---	---	9.46	9.65	---	9.92	---	---	---	7.99
4	---		---	---	---	---	9.81	---	---	8.67	8.18	8.03
5	---		---	9.33	9.47	9.66	9.84	9.92	9.29	---	---	8.14
6	---		---	9.33	9.50	---	9.84	---	---	---	8.09	8.28
7	9.71		---	---	9.51	9.68	---	10.04	9.13	8.62	---	8.38
8	---		9.21	---	9.58	---	9.84	---	---	---	---	---
9	---		---	9.34	9.64	9.69	9.83	10.13	8.99	8.47	7.86	8.59
10	---		---	---	9.68	9.69	---	10.17	---	8.44	---	---
11	---		---	9.35	---	---	9.83	10.17	8.85	8.38	7.78	---
12	---		9.22	---	9.69	9.74	9.82	10.16	---	---	---	8.86
13	---		---	9.34	9.69	9.75	9.84	---	---	8.36	---	8.99
14	---		9.32	---	---	9.75	9.84	---	8.75	8.33	7.69	9.10
15	---		---	9.36	9.68	---	---	10.23	---	---	---	9.25
16	---		9.34	---	9.67	9.75	---	10.26	---	---	7.68	---
17	---		---	9.40	9.67	---	9.91	---	---	---	---	9.41
18	---		9.34	---	---	---	---	10.29	8.83	8.37	7.62	---
19	---		---	9.39	9.68	9.76	9.92	10.29	---	---	---	9.61
20	---		9.32	9.39	9.67	---	9.92	---	---	8.40	---	---
21	---		---	---	9.68	9.76	---	---	8.73	---	7.72	9.81
22	---		---	9.41	---	---	9.91	10.27	---	8.46	---	---
23	---		---	---	9.68	9.79	---	---	8.66	---	7.69	---
24	---		9.31	9.42	---	---	9.91	10.18	---	8.49	---	10.13
25	---		---	---	---	---	---	---	8.54	---	7.76	10.24
26	---		9.31	9.41	9.71	9.79	9.92	---	---	8.48	---	10.35
27	---		---	9.41	---	9.80	---	---	---	---	---	10.45
28	---		---	---	9.69	9.80	9.94	---	---	8.49	7.93	---
29	---		9.30	9.43	---	9.80	---	9.84	8.36	---	7.94	10.60
30	---		---	---	---	---	9.93	---	---	---	7.98	---
31	---		---	9.43	---	9.80	---	9.66	---	8.31	---	---
MEAN	---		---	---	---	---	---	---	---	---	---	---
MAX	---		---	---	---	---	---	---	---	---	---	---
MIN	---		---	---	---	---	---	---	---	---	---	---

12445000 OKANOGAN RIVER NEAR TONASKET, WA

LOCATION.--Lat 48°37'57", long 119°27'38", in lot 3, sec.8, T.36 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on right bank 1,000 ft (305 m) upstream from Chewiliken Creek, 5.2 mi (8.4 km) south of Tonasket, and at mile 50.8 (81.7 km).

DRAINAGE AREA.--7,260 mi^2 (18,000 km^2), approximately.

PERIOD OF RECORD.--April 1929 to current year.

REVISED RECORDS.--WSP 862: 1937. WSP 1316: 1934(M), 1938(M). WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 860.78 ft (262.366 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent. Diversions above station for irrigation of about 10,700 acres (43 km^2) in the United States and 55,000 acres (220 km^2) in Canada. Flow affected by regulation of Okanagan and Skaha Lakes and by natural storage in other lakes.

AVERAGE DISCHARGE.--49 years, 2,962 ft^3/s (83.88 m^3/s), 2,146,000 acre-ft/yr (2,650 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,700 ft^3/s (1,270 m^3/s) June 2, 1972, gage height, 22.54 ft (6.870 m); minimum recorded, 126 ft^3/s (3.57 m) Sept. 5, 1931, gage height, 3.43 ft (1.045 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,800 ft^3/s (504 m^3/s) June 8, gage height, 14.69 ft (4.478 m); minimum daily discharge, 530 ft^3/s (15.0 m^3/s) Jan. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	891	888	1270	540	1000	1560	2890	5720	8520	6420	1610	1760
2	871	870	1250	530	1030	1510	2990	5720	9430	5860	1510	1440
3	853	949	1190	540	1200	1440	2950	6150	10800	5450	1430	1560
4	834	1530	1280	560	1290	1370	2860	6340	12800	5380	1370	1620
5	821	1410	1520	620	1260	1320	2820	5980	14700	5230	1300	1620
6	808	1270	1410	640	1310	1320	2740	5680	16000	4950	1250	1670
7	798	1170	1290	640	1400	1390	2650	5370	17300	4660	1220	1790
8	798	1100	1050	740	1610	1480	2580	5220	17700	4420	1090	2070
9	800	1040	950	867	1560	1500	2500	5340	17200	4180	1010	2200
10	789	986	989	925	1570	1490	2450	6010	16200	4000	959	2140
11	784	922	913	937	1540	1500	2430	6870	14300	4050	912	2240
12	783	909	1100	944	1520	1510	2600	6820	12300	3750	883	2530
13	791	917	1320	938	1500	1510	2880	6900	11300	3510	879	2500
14	782	925	1390	921	1490	1510	3020	6950	11000	3280	904	2360
15	789	912	1450	906	1490	1510	3000	7460	10100	3260	922	2260
16	810	903	1390	910	1490	1510	2950	7930	9420	3170	975	2140
17	816	891	1370	929	1490	1510	2930	7990	8760	3190	1050	2040
18	802	873	1280	949	1490	1520	2850	8130	8290	3480	1190	2020
19	796	848	1170	950	1470	1540	2780	8300	8450	3200	1320	1960
20	797	799	1090	934	1480	1570	2730	9080	7810	2920	1270	1920
21	788	687	995	952	1500	1630	2750	10700	7660	2700	1250	1880
22	783	650	900	992	1510	1670	2800	12500	7700	2510	1280	1840
23	766	610	800	975	1550	1700	2790	13000	7750	2370	1260	1840
24	760	580	700	1150	1610	1760	2780	12000	7380	2250	1300	1860
25	747	564	620	1170	1620	1780	2750	10900	7330	2070	1390	2010
26	760	597	600	1140	1610	1840	2780	9980	6790	1960	1400	2030
27	945	608	590	1110	1600	1880	2910	9230	6210	1930	1410	1980
28	1040	985	590	1080	1590	1980	3590	8950	5970	1990	1350	1920
29	995	1330	580	1050	---	2150	4770	9240	5830	2040	1310	1910
30	949	1290	580	1000	---	2380	5490	9030	6200	1880	1280	1890
31	908	---	560	1000	---	2640	---	8450	---	1730	1240	---
TOTAL	25654	28013	32107	27539	40780	50990	89010	247940	311200	107790	37524	58500
MEAN	828	934	1036	888	1456	1645	2967	7998	10370	3477	1210	1950
MAX	1040	1530	1520	1170	1620	2640	5490	13000	17700	6420	1610	2530
MIN	747	564	560	530	1000	1320	2430	5220	5830	1730	879	1260
AC-FT	50880	55560	63680	54620	80890	101100	176600	491800	617300	213800	74430	116000

CAL YR 1977 TOTAL 521084 MEAN 1428 MAX 6450 MIN 383 AC-FT 1034000
WTR YR 1978 TOTAL 1057037 MEAN 2896 MAX 17700 MIN 530 AC-FT 2097000

12446000 OKANOGAN RIVER AT OKANOGAN, WA

LOCATION.--Lat 48°21'48", long 119°34'36", in SW¼NW¼ sec.16, T.33 N., R.26 E., Okanogan County, Hydrologic Unit 17020006, at highway bridge at Okanogan, 0.2 mi (0.3 km) upstream from Salmon Creek.

DRAINAGE AREA.--7,880 mi^2 (20,409 km^2).

PERIOD OF RECORD.--Water years 1975 to current year.

REMARKS.--Water discharge from rating; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
OCT , 1977							
25...	1245	830	330	8.0	10.5	15	1
NOV							
15...	1305	1320	288	8.1	7.0	15	1
DEC							
13...	1300	1320	290	8.8	.5	15	2
FEB , 1978							
21...	1325	1530	335	8.1	4.2	30	3
MAR							
14...	1320	1560	324	8.3	6.7	15	6
APR							
11...	1320	2560	232	8.5	11.4	15	6
MAY							
09...	1330	5420	150	8.6	13.4	30	8
JUN							
06...	1315	17200	82	7.7	12.8	75	67
JUL							
11...	1325	4190	134	7.9	19.2	15	4
AUG							
22...	1320	1330	218	8.1	20.0	15	3
SEP							
12...	1315	2430	202	8.1	16.5	15	3

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977						
25...	11.7	.01	.04	.02	.00	.00
NOV						
15...	13.0	.07	.08	.02	.00	.00
DEC						
13...	14.0	.06	.04	.01	.00	.00
FEB , 1978						
21...	14.2	.03	.04	.02	.00	.00
MAR						
14...	13.5	.01	.05	.05	.00	.00
APR						
11...	11.0	.02	.06	.06	.00	.00
MAY						
09...	9.6	.01	.06	.06	.00	.00
JUN						
06...	10.0	.04	.02	.59	.01	.03
JUL						
11...	10.9	.02	.08	.03	.01	.03
AUG						
22...	9.0	.04	.04	.03	.01	.03
SEP						
12...	9.3	.01	.02	.03	.00	.00

12447200 OKANOGAN RIVER AT MALOTT, WA

LOCATION.--Lat 48°16'53", long 119°42'12", in SW¼ sec.9, T.32 N., R.25 E., Okanogan County, Hydrologic Unit 17020006, on right bank 75 ft (23 m) upstream from highway bridge at Malott, 0.1 mi (0.2 km) upstream from Loup Loup Creek, and at mile 17.0 (27.4 km).

DRAINAGE AREA.--8,080 mi² (20,930 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1958 to current year. April 1958 to September 1965, published as "near Malott." Records published for both sites December 1965 to July 1967.

REVISED RECORDS.--WDR WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 785.55 ft (238.826 m), National Geodetic Vertical Datum of 1929. April 1958 to November 1965, water-stage recorder at site 3.9 mi (6.3 km) downstream at National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent. Diversions above station for irrigation of about 22,000 acres (89 km²) in the United States and 55,000 acres (220 km²) in Canada. Flow regulated by Okanagan and Skaha Lakes and by natural storage in other lakes.

AVERAGE DISCHARGE.--20 years, 3,130 ft³/s (88.64 m³/s), 2,268,000 acre-ft/yr (2,800 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,600 ft³/s (1,290 m³/s) June 3, 1972, gage height, 22.16 ft (6.754 m); minimum observed, 288 ft³/s (8.16 m³/s) Sept. 4, 1970, gage height, 2.03 ft (0.619 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,500 ft³/s (524 m³/s) June 8, gage height, 12.84 ft (3.914 m); minimum daily discharge, 490 ft³/s (13.9 m³/s) Jan. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	924	984	1280	510	980	1550	2760	5880	8810	6870	1700	1220
2	898	884	1280	500	980	1520	2930	5970	9430	6470	1570	1310
3	878	865	1230	490	1000	1460	2980	6190	10700	5910	1480	1440
4	861	1070	1180	560	1310	1400	2900	6620	12600	5740	1480	1540
5	847	1500	1380	620	1290	1340	2850	6400	14800	5620	1340	1620
6	837	1320	1500	680	1240	1300	2790	6020	16400	5370	1280	1630
7	819	1220	1370	724	1360	1350	2700	5680	17800	5000	1220	1700
8	810	1120	1030	835	1600	1480	2620	5430	18500	4700	1190	1830
9	810	1050	720	888	1640	1560	2540	5410	18200	4430	1060	2120
10	810	995	690	966	1590	1540	2490	5870	17500	4190	982	2190
11	792	945	730	1010	1560	1530	2480	7000	16100	4160	932	2130
12	792	893	967	1030	1520	1550	2480	7000	13700	4010	878	2320
13	801	891	1290	1040	1490	1530	2790	7000	12200	3710	858	2520
14	801	899	1600	1050	1480	1520	2960	7100	11700	3460	852	2450
15	792	910	1730	1050	1470	1510	3050	7500	11000	3330	875	2330
16	801	894	1670	1050	1470	1520	3050	8000	10100	3300	905	2230
17	810	879	1450	1080	1470	1520	3060	8100	9470	3230	941	2120
18	819	862	1370	1070	1470	1540	2960	8200	8880	3410	1020	2050
19	801	847	1250	1090	1460	1580	2860	8500	8860	3450	1150	2010
20	801	822	1150	1090	1460	1600	2820	9110	8510	3100	1270	1950
21	801	711	1060	1100	1470	1640	2770	10500	8140	2850	1230	1910
22	792	650	980	1120	1480	1700	2820	12400	8110	2640	1220	1870
23	783	620	780	1090	1500	1740	2850	13600	8180	2470	1250	1850
24	774	600	570	1080	1560	1850	2820	13000	7920	2340	1230	1850
25	756	580	560	1300	1590	1850	2790	11800	7830	2200	1300	1960
26	747	590	550	1270	1590	1900	2790	10800	7430	2040	1370	2030
27	765	640	540	1190	1580	1940	2890	9910	6820	2080	1370	2010
28	976	694	540	1110	1570	2010	3240	9420	6400	1930	1370	1950
29	1050	1140	530	1060	---	2090	4380	9540	6180	2020	1320	1910
30	984	1310	520	1020	---	2310	5480	9590	6420	2000	1270	1980
31	945	---	520	1000	---	2510	---	9080	---	1840	1250	---
TOTAL	25879	27305	31857	29678	40230	51440	88900	256620	328690	113790	37083	57910
MEAN	835	910	1028	957	1437	1659	2963	8278	10960	3671	1196	1930
MAX	1050	1500	1730	1300	1640	2510	5480	13600	18500	6870	1700	2520
MIN	747	580	520	490	980	1300	2480	5410	6180	1840	852	1220
AC-FT	51330	54160	63190	58870	79800	102000	176300	509000	652000	225700	73550	114900

CAL YR 1977 TOTAL 524925 MEAN 1438 MAX 6780 MIN 329 AC-FT 1041000
WTR YR 1978 TOTAL 1089382 MEAN 2985 MAX 18500 MIN 490 AC-FT 2161000

12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-62, 1963-70 (partial-record station), 1972, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: November 1969 to June 1971.

REMARKS.--Water years 1959 to 1963 published as 12447300 "near Brewster", 1964 to 1966 published as 12447300 "near Malott."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT , 1977										
25...	1220	757	340	7.9	9.8	15	2	11.0	150	17
NOV										
15...	1245	920	295	8.0	6.7	10	1	12.2	130	14
DEC										
13...	1225	1240	268	8.8	.2	15	2	13.6	120	26
FEB , 1978										
21...	1255	1470	335	8.1	4.5	20	2	13.6	140	20
MAR										
14...	1300	1520	323	8.3	6.9	15	4	--	140	12
APR										
11...	1255	2470	232	8.4	11.4	20	5	10.9	110	14
MAY										
09...	1245	5360	165	8.4	13.1	35	8	9.6	73	11
JUN										
06...	1235	16500	83	7.7	12.3	65	57	10.2	36	5
JUL										
11...	1255	4190	135	7.8	19.4	35	2	10.5	61	7
AUG										
22...	1240	1220	240	8.2	19.6	15	3	8.5	100	13
SEP										
12...	1235	2340	202	8.0	16.2	15	3	9.0	85	13

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)
OCT , 1977										
25...	38	13	11	14	.4	2.4	160	0	130	3.2
NOV										
15...	35	10	8.9	13	.3	2.0	140	0	110	2.2
DEC										
13...	32	8.9	8.8	14	.4	2.0	110	0	90	.3
FEB , 1978										
21...	39	11	11	14	.4	2.4	150	0	120	1.9
MAR										
14...	36	11	10	14	.4	2.4	150	0	120	1.2
APR										
11...	32	7.8	6.9	12	.3	1.6	120	0	98	.8
MAY										
09...	21	5.0	4.6	12	.2	1.1	74	1	62	.5
JUN										
06...	11	2.1	2.4	12	.2	.8	38	0	31	1.2
JUL										
11...	18	3.8	3.7	12	.2	.9	65	0	53	1.6
AUG										
22...	29	7.4	9.0	16	.4	1.7	110	0	90	1.1
SEP										
12...	24	6.1	6.1	13	.3	1.5	88	0	72	1.4

12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

WATER QUALITY DATA

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977										
25...	39	2.2	.96	.00	.10	.11	.21	.02	.00	.00
NOV										
15...	32	2.1	.01	.00	.03	.14	.17	.02	.01	.03
DEC										
13...	27	4.3	.06	.00	.06	.14	.20	.02	.01	.03
FEB , 1978										
21...	33	2.6	.03	.00	.04	.22	.26	.04	.00	.00
MAR										
14...	31	3.1	.00	.00	.05	.29	.34	.04	.00	.00
APR										
11...	23	2.2	.06	.00	.02	.30	.32	.03	.00	.00
MAY										
09...	19	1.5	.27	.00	.14	.56	.70	.05	.00	.00
JUN										
06...	5.9	.7	.03	.00	.04	.44	.48	.20	.01	.03
JUL										
11...	11	1.0	.01	.00	.02	.22	.24	.03	.01	.03
AUG										
22...	29	5.0	.01	.00	.03	.19	.22	.02	.01	.03
SEP										
12...	21	1.1	.01	.00	.02	.20	.22	--	--	--

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	LEAD, DIS-SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT , 1977									
25...	4	3	0	1	36	.0	0	0	10
NOV									
15...	4	1	0	0	7	.0	0	0	10
DEC									
13...	2	0	0	1	3	.0	0	0	20
FEB , 1978									
21...	3	0	10	1	4	.0	0	0	0
MAR									
14...	3	0	0	2	4	.0	0	0	0
APR									
11...	3	0	0	0	2	.0	0	0	0
MAY									
09...	3	1	0	3	9	.0	0	0	5
JUN									
06...	4	0	5	4	5	.0	0	0	5
JUL									
11...	6	<1	0	1	4	.0	0	0	<3
AUG									
22...	7	0	0	1	4	.0	0	0	10
SEP									
12...	4	<1	0	2	5	.3	1	0	<3

12447374 METHOW RIVER BELOW GATE CREEK NEAR MAZAMA, WA

LOCATION.--Lat 48°37'46", long 120°27'50", in SW¼SW¼ sec.10, T.36 N., R.19 E., Okanogan County, Hydrologic Unit 17020008, at gate Creek campground 0.2 mi (0.3 km) downstream from Gate Creek, 2.5 mi (4.0 km) upstream from Early Winters Creek and 3.9 mi (6.3 km) northwest of Mazama, and at mile 69.8 (112.3 km).

PERIOD OF RECORD.--Water years 1975 to current year.

REMARKS.--Water discharge from rating; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
APR , 1978							
12...	0805	340	118	7.5	3.4	10	1
MAY							
10...	0850	1360	76	7.8	4.7	25	2
JUN							
07...	0835	820	59	7.4	5.7	20	8
JUL							
12...	1005	615	75	7.5	9.4	20	1
AUG							
23...	0835	45	108	7.6	9.7	5	1
SEP							
13...	0900	241	82	7.4	8.6	5	2

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
APR , 1978						
12...	12.3	.06	.03	.01	.00	.00
MAY						
10...	11.3	.06	.04	.02	.00	.00
JUN						
07...	10.9	.03	.16	.06	.00	.00
JUL						
12...	11.5	.01	.01	.00	.00	.00
AUG						
23...	8.5	.01	.02	.00	.00	.00
SEP						
13...	10.1	.02	.01	.01	.00	.00

12447390 ANDREWS CREEK NEAR MAZAMA, WA
(Hydrologic bench-mark station)

LOCATION.--Lat 48°49'23", long 120°08'41", in NE¼ sec.1, T.38 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, Okanogan National Forest, on left bank 50 ft (15 m) upstream from Blizzard Creek, 3.5 mi (5.6 km) upstream from mouth, and 20 mi (32 km) northeast of Mazama.

DRAINAGE AREA.--22.1 mi² (57.2 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to current year.

REVISED RECORDS.--WDR WA-76-2: 1975, WDR WA-77-2: 1976.

GAGE.--Water-stage recorder. Altitude of gage is 4,300 ft (1,310 m), from topographic map.

REMARKS.--Records good. No regulation or diversion.

AVERAGE DISCHARGE.--10 years, 34.2 ft³/s (0.969 m³/s), 21.02 in/yr (534 mm/yr), 24,780 acre-ft/yr (30.6 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 ft³/s (31.7 m³/s) June 10, 1972, gage height, 4.00 ft (1.219 m) from rating curve extended above 440 ft³/s (12.5 m³/s); minimum, 1.2 ft³/s (0.034 m³/s) Nov. 4, 1968, Nov. 20, 1970, Apr. 7, 1975; minimum gage height, 0.27 ft (0.082 m) Mar. 25-29, Apr. 6, 7, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 21	2100	222	6.29	2.45	0.747	June 21	2000	241	6.83	2.52	0.768
June 5	2300	*552	15.6	*3.27	0.997	June 29	2300	224	6.34	2.46	0.750

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	4.3	3.6	3.1	2.6	2.4	8.5	37	133	130	23	24
2	5.4	4.5	3.9	3.1	2.5	2.4	8.4	46	148	130	22	25
3	5.0	3.4	4.1	3.1	2.4	2.4	8.2	50	261	117	21	22
4	4.8	3.9	3.6	3.1	2.5	2.4	8.2	45	324	110	20	26
5	5.0	3.6	3.6	3.1	2.6	2.4	7.9	41	388	103	20	28
6	4.8	3.6	3.6	3.1	2.5	2.4	7.9	39	364	94	19	38
7	4.8	3.4	3.6	3.1	2.6	2.4	7.9	39	348	88	18	45
8	4.8	3.1	3.4	3.1	2.6	2.4	8.2	46	329	79	18	41
9	4.8	3.6	3.4	3.0	2.6	2.4	8.4	59	296	76	17	52
10	4.1	3.6	3.4	2.9	2.6	2.4	10	67	230	76	17	100
11	4.5	3.6	3.7	2.9	2.4	2.4	12	66	190	65	16	82
12	4.5	3.6	3.7	2.9	2.4	2.4	13	66	193	58	17	66
13	4.5	3.6	3.7	2.9	2.4	2.4	13	63	184	53	17	59
14	4.3	3.6	3.7	2.8	2.4	2.4	13	76	157	49	16	53
15	4.3	3.4	3.7	2.9	2.4	2.4	13	74	136	45	18	47
16	4.3	3.6	3.7	2.8	2.4	2.4	13	65	141	56	18	42
17	3.9	3.4	3.6	2.7	2.4	2.5	13	64	167	48	18	40
18	3.6	3.3	3.6	2.6	2.4	2.6	13	69	179	42	16	38
19	3.9	3.6	3.4	2.6	2.4	2.7	13	92	165	40	17	36
20	3.3	3.3	3.4	2.6	2.4	2.9	13	130	178	37	18	34
21	3.6	2.9	3.4	2.6	2.4	3.4	13	172	190	34	17	35
22	3.6	3.1	3.4	2.6	2.4	4.3	13	167	174	33	17	35
23	3.6	3.1	3.4	2.6	2.4	4.9	13	128	170	31	17	39
24	3.6	3.3	3.3	2.6	2.4	5.1	13	106	169	29	21	37
25	3.9	3.3	3.3	2.6	2.4	5.4	13	93	154	28	24	34
26	3.4	3.4	3.3	2.6	2.4	6.1	16	85	139	27	20	32
27	3.6	3.4	3.3	2.6	2.4	6.2	26	83	145	39	18	30
28	3.4	3.4	3.3	2.6	2.4	6.6	34	85	154	30	17	29
29	3.0	3.4	3.3	2.6	---	7.4	35	87	167	28	17	28
30	4.1	3.4	3.3	2.5	---	8.4	36	81	156	26	18	27
31	3.1	---	3.2	2.5	---	8.8	---	100	---	24	21	---
TOTAL	138.0	104.7	108.9	86.8	68.7	115.7	425.6	2615	6179	1825	573	1224
MEAN	4.19	3.49	3.51	2.80	2.45	3.73	14.2	77.9	206	58.9	18.5	40.8
MAX	5.6	4.5	4.1	3.1	2.6	8.8	36	172	388	130	24	100
MIN	3.1	2.9	3.2	2.5	2.4	2.4	7.9	37	133	24	16	22
CFSM	.19	.16	.16	.13	.11	.17	.64	3.53	9.32	2.67	.84	1.85
IN.	.22	.18	.18	.15	.12	.19	.72	4.06	10.40	3.07	.96	2.06
AC-FT	258	208	216	172	136	229	844	4790	12260	3620	1140	2430

CAL YR 1977 TOTAL 4555.9 MEAN 12.5 MAX 171 MIN 1.9 CFSM .57 IN 7.67 AC-FT 9040
WTR YR 1978 TOTAL 13256.4 MEAN 36.3 MAX 388 MIN 2.4 CFSM 1.64 IN 22.31 AC-FT 26290

12447390 ANDREWS CREEK NEAR MAZAMA, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
NOV , 1977												
01...	1430	3.4	60	7.4	1.2	12.0	<1	<1	<1	23	0	7.3
29...	1430	3.4	46	8.7	1.0	12.7	<1	<1	73	24	0	7.8
JAN , 1978												
17...	1330	3.4	58	7.2	1.3	11.2	<1	<1	<1	26	0	8.6
31...	1034	2.6	67	6.9	.8	12.4	4	<1	1	25	0	8.2
MAR												
01...	1140	2.4	51	7.5	1.0	11.5	<1	<1	<1	24	0	7.8
APR												
25...	1030	13	52	7.4	2.0	11.8	--	--	--	20	0	6.5
MAY												
25...	1245	98	19	7.8	2.6	11.6	7	<1	1	15	0	5.5
JUN												
20...	1200	152	22	7.6	3.8	11.1	4	7	<1	12	0	4.4
JUL												
19...	1130	37	29	7.8	7.1	10.7	<1	1	53	14	0	4.4
AUG												
22...	1100	17	59	7.8	7.9	10.5	4	<1	90	16	0	5.1
SEP												
13...	1040	55	25	7.4	7.1	--	28	<1	15	13	0	4.0

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV , 1977												
01...	1.1	2.2	17	.2	.5	31	0	25	2.0	1.8	.4	.1
29...	1.1	2.1	16	.2	.5	33	0	27	.1	2.5	.9	.1
JAN , 1978												
17...	1.0	2.5	17	.2	.6	33	0	27	3.3	2.2	.4	.1
31...	1.2	2.3	16	.2	.6	36	0	30	7.3	3.1	.3	.1
MAR												
01...	1.0	2.4	18	.2	.5	30	0	25	1.5	2.4	.2	.1
APR												
25...	1.0	7.4	40	.7	3.2	34	0	28	2.2	2.8	.8	.1
MAY												
25...	.4	1.5	17	.2	.5	--	--	15	--	2.9	.3	.1
JUN												
20...	.2	1.2	18	.2	.3	--	--	12	--	2.0	.2	.0
JUL												
19...	.8	2.4	26	.3	.6	--	--	18	--	1.6	.3	.4
AUG												
22...	.8	6.3	41	.7	3.0	--	--	23	--	2.7	.3	.1
SEP												
13...	.7	1.5	20	.2	.3	--	--	15	--	1.7	.3	.0

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)
NOV , 1977											
01...	11	45	--	40	.06	.41	--	.03	.02	1	.01
29...	11	38	--	42	.05	.35	--	--	--	--	--
JAN , 1978											
17...	11	37	36	43	.05	.34	<1	.20	.01	2	.02
31...	11	56	--	45	.08	.39	--	.11	.01	3	.02
MAR											
01...	13	52	--	42	.07	.34	--	.14	.01	1	.01
APR											
25...	10	43	--	49	.06	1.51	--	.09	.00	4	.14
MAY											
25...	8.1	28	--	28	.04	6.80	--	.01	.00	1	.24
JUN											
20...	8.1	24	--	24	.03	9.85	--	.05	.01	1	.41
JUL											
19...	6.4	29	--	28	.04	2.90	--	.01	.00	1	.10
AUG											
22...	8.7	37	--	41	.05	1.70	--	.02	.03	2	.09
SEP											
13...	9.2	25	--	27	.03	3.71	--	.02	.00	1	.15

12447390 ANDREWS CREEK NEAR MAZAMA, WA--Continued

WATER QUALITY DATA

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
JAN . 1978							
17...	1330	0	0	0	10	0	10
JUN							
28...	1200	0	200	4	10	6	110

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
JAN . 1978							
17...	3	0	.0	1	1	10	.03
JUN							
28...	35	0	.0	0	0	10	.00

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)
JUN . 1978												
28...	1200	.0	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00

DATE	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)
JUN . 1978											
28...	.00	.00	.00	.00	.00	.00	.00	.00	.00	0	.00

DATE	TIME	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP, TOTAL (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP, TOTAL (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP, TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L)	URANIUM DISSOLVED, EXTRACTION (UG/L)
JAN . 1978									
17...	1330	<.4	<.4	.6	<.4	.6	<.4	.16	.40
JUN									
28...	1200	.6	<.4	.8	<.4	.8	<.4	.04	.28

12448998 TWISP RIVER NEAR TWISP, WA

LOCATION.--Lat 48°22'12", long 120°08'51", in SE¼SE¼ sec.12, T.35 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, on left bank, 20 ft (6.1 m) downstream from county road bridge, 0.8 mi (1.3 km) west of the Twisp city limits and at mile 1.0 (2.0 km).

DRAINAGE AREA.--245 mi^2 (635 km^2).

PERIOD OF RECORD.--May 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,640 ft (500 m) from topographic map.

REMARKS.--Records good except those during winter months, which are fair. No known regulation. Several diversions above station for irrigation. On Sept. 2, 1971, water diverted above station from Twisp River was measured at 61.5 ft^3/s (1.74 m^3/s) of which 32.9 ft^3/s (0.93 m^3/s) was carried by Twisp-Methow Valley Irrigation District Canal which diverts from right bank about 3.2 mi (5.1 km) west of Twisp city limits; most of the diverted water in this canal is used to irrigate land below the station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,130 ft^3/s (88.6 m^3/s) June 5, 1978, from rating curve extended above 1,500 ft^3/s (42.5 m^3/s), gage height, 11.62 ft (3.542 m); minimum, 17 ft^3/s (0.48 m^3/s), Sept. 13, 14, 15, 16, 17, 18, 1977, gage height, 7.02 ft (2.140 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 29, 1948 had a discharge of 9,440 ft^3/s (267 m^3/s), by slope-area measurement made about 1,000 ft (300 m) upstream from mouth.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,130 ft^3/s (88.6 m^3/s) June 5 from rating curve extended above 1,500 ft^3/s (42.5 m^3/s) gage height, 11.62 ft (3.542 m); minimum daily, 18 ft^3/s (0.51 m^3/s) Nov. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	68	71	78	57	60	548	785	851	1090	182	72
2	44	71	98	74	58	60	486	727	1180	935	171	83
3	44	62	149	78	58	58	459	767	1770	885	164	88
4	43	53	122	74	57	61	427	727	2400	893	154	78
5	43	46	106	74	57	61	392	650	2600	980	149	80
6	42	43	102	72	58	60	368	589	2670	879	140	86
7	41	41	95	69	64	62	352	567	2280	851	131	90
8	40	34	86	68	65	62	340	600	2280	788	124	83
9	41	39	82	66	65	62	336	732	1910	738	122	85
10	40	39	80	65	62	62	356	872	1490	617	120	129
11	39	43	80	64	60	62	418	865	1250	510	112	140
12	38	41	82	63	61	64	436	767	1130	445	110	122
13	39	40	86	63	61	67	445	721	1080	409	108	112
14	38	44	88	62	60	66	441	785	1020	409	93	102
15	37	46	88	62	60	68	458	694	900	404	88	95
16	37	38	86	61	57	68	454	661	748	454	88	91
17	36	30	83	61	58	71	422	644	879	440	85	95
18	36	23	77	62	60	76	414	661	1180	380	78	97
19	36	21	76	62	58	92	414	802	1140	336	74	91
20	35	19	74	62	58	110	418	1130	1130	304	68	88
21	35	18	72	62	58	131	418	1550	1220	284	67	88
22	35	18	72	62	58	189	414	1570	1270	280	64	93
23	36	20	71	60	58	247	396	1240	1110	280	60	122
24	39	22	71	60	60	280	368	1020	1090	274	64	142
25	48	40	70	60	60	284	384	850	1050	256	83	156
26	44	100	70	58	60	308	422	743	928	241	72	161
27	38	80	70	57	60	354	545	688	963	320	65	166
28	37	68	70	58	60	399	678	694	1150	262	61	166
29	39	83	76	58	---	452	727	699	1300	226	65	156
30	43	74	76	57	---	520	727	672	1250	203	65	149
31	42	---	72	57	---	551	---	694	---	184	71	---
TOTAL	1230	1344	2601	1981	1668	5069	13466	25014	41090	15457	3090	3298
MEAN	39.7	44.8	83.9	63.9	59.6	164	449	807	1370	499	99.7	110
MAX	48	100	149	78	65	551	727	1570	2670	1090	182	166
MIN	35	18	70	57	57	58	336	567	788	184	60	72
AC-FT	2440	2670	5160	3930	3310	10050	26710	49620	81520	30660	6130	6540

CAL YR 1977	TOTAL	29750	MEAN	81.5	MAX	678	MIN 17	AC-FT	59010		
WTR YR 1978	TOTAL	115317	MEAN	316	MAX	2670	MIN 18	AC-FT	228700		

METHOW RIVER BASIN

12449510 METHOW RIVER NEAR TWISP, WA

LOCATION.--Lat 48°20'55", long 120°06'21", in SE¼SE¼ sec.21, T.35 N., R.22 E., Okanogan County, Hydrologic Unit 17020006, 1.3 mi (2.1 km) southeast of Twisp city limits, 2.2 mi (3.5 km) upstream from Beaver Creek and 3.0 mi (4.8 km) downstream from Twisp River.

PERIOD OF RECORD.--Water years 1976 to current year.

REMARKS.--Water discharge from rating; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW (CFS)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)
OCT , 1977							
26...	0915	--	266	170	7.7	5.3	15
NOV							
16...	0900	--	268	157	8.0	3.3	15
DEC							
14...	0930	--	307	160	7.8	2.8	5
JAN , 1976							
11...	0855	--	299	151	7.9	1.7	5
FEB							
22...	0800	--	230	170	7.4	5.0	0
MAR							
15...	0815	--	260	164	6.7	3.0	5
APR							
12...	0700	--	1990	152	7.9	4.2	15
MAY							
10...	0740	--	4510	90	7.3	5.6	29
JUN							
07...	0725	--	11200	53	7.2	6.6	50
JUL							
12...	0855	3200	--	87	7.8	10.5	15
AUG							
23...	0730	--	965	141	7.4	12.4	5
SEP							
13...	0800	--	1430	92	7.5	10.4	15

DATE	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977							
26...	1	12.1	.15	.02	.01	.00	.00
NOV							
16...	2	12.9	.14	.03	.01	.00	.00
DEC							
14...	2	12.8	.17	.03	.01	.00	.00
JAN , 1976							
11...	1	13.2	.19	.06	.01	.01	.03
FEB							
22...	1	12.4	.15	.04	.01	.00	.00
MAR							
15...	1	13.4	.16	.02	.00	.00	.00
APR							
12...	1	12.4	.07	.02	.01	.00	.00
MAY							
10...	4	11.4	.15	.14	.15	.00	.00
JUN							
07...	33	11.3	.03	.03	.18	.02	.06
JUL							
12...	2	11.8	.04	.02	.00	.00	.00
AUG							
23...	1	10.1	.19	.03	.02	.01	.03
SEP							
13...	1	9.9	.06	.01	.00	.00	.00

12449600 BEAVER CREEK BELOW SOUTH FORK, NEAR TWISP, WA

LOCATION.--Lat 48°26'00", long 120°01'26", in SE¼NW¼ sec.24, T.34 N., R.22 E., Okanogan County, Hydrologic Unit 17020006, on right bank 1,000 ft (305 m) downstream from South Fork Beaver Creek, 6.5 mi (10.5 km) northeast of Twisp, and at mile 8.9 (14.3 km).

DRAINAGE AREA.--62.0 mi^2 (160.6 km^2).

PERIOD OF RECORD.-- April 1960 to September 1978 (discontinued).

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,800 ft (853 m), from topographic map.

REMARKS.--Records good except those for winter periods, which are poor. No regulation or diversion above station.

AVERAGE DISCHARGE.--18 years, 20.5 ft^3/s (0.581 m^3/s) 4.49 in/yr (114 mm/yr) 14,850 acre-ft/yr (18.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 535 ft^3/s (15.2 m^3/s) May 29, 1972, gage height, 7.05 ft (2.149 m); minimum, 0.75 ft^3/s (0.021 m^3/s) Nov. 15, 16, 1968; minimum gage height, 3.94 ft (1.201 m) Nov. 19, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 80 ft^3/s (2.27 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 2	2015	81	2.29	4.95	1.509	June 5	2145	223	6.32	5.54	1.689
May 21	2145	*230	6.51	*5.56	1.695						

Minimum daily discharge, 3.7 ft^3/s (0.10 m^3/s) Nov. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	9.8	6.3	5.8	5.0	5.4	16	59	129	41	15	13
2	5.4	12	8.0	5.8	5.0	5.4	15	72	143	48	14	13
3	5.6	8.2	9.3	6.4	5.2	5.2	15	76	142	46	13	12
4	5.6	7.6	8.9	6.2	5.2	5.8	15	72	181	52	13	13
5	5.6	7.4	8.4	6.2	5.2	5.6	14	66	103	49	12	13
6	5.8	7.2	8.2	6.2	5.8	5.5	13	64	193	42	12	19
7	6.0	7.2	7.8	6.2	6.0	5.8	14	69	178	46	11	17
8	5.8	6.4	7.6	6.2	6.0	5.6	15	81	167	41	11	15
9	6.0	9.0	7.4	6.0	6.0	5.6	15	93	155	36	11	17
10	6.0	8.0	7.2	5.8	5.8	5.7	17	100	138	34	11	23
11	6.2	8.5	7.2	5.8	5.6	5.8	20	108	127	33	10	21
12	6.5	8.2	7.2	5.8	6.0	5.8	19	96	120	30	10	16
13	6.5	8.2	7.6	5.8	5.7	6.0	19	108	116	29	10	15
14	6.5	8.5	7.8	5.7	5.6	6.0	18	122	110	27	11	15
15	6.5	8.5	7.6	5.4	5.6	6.0	22	134	106	26	11	14
16	6.5	8.2	7.5	5.6	5.4	6.1	24	125	96	32	11	13
17	6.5	7.0	7.3	5.6	5.4	6.2	23	125	91	29	10	13
18	6.5	5.2	7.1	5.6	5.8	6.5	23	127	87	26	10	13
19	6.8	4.5	7.0	5.6	5.6	7.0	25	145	81	24	11	13
20	6.8	4.0	6.6	5.4	5.6	7.6	28	175	76	23	12	12
21	7.0	3.7	6.5	5.6	5.6	8.5	27	203	70	21	11	13
22	7.2	3.7	6.4	5.6	5.6	10	27	200	66	20	12	13
23	7.6	3.9	6.4	5.2	5.6	12	27	175	63	19	17	14
24	7.6	4.0	6.2	5.2	5.6	13	27	157	59	19	15	14
25	7.6	5.0	6.1	5.4	5.8	12	29	143	54	17	19	13
26	7.6	6.2	6.0	5.4	5.8	13	35	131	52	17	16	12
27	7.6	6.2	5.8	5.2	5.8	14	44	127	47	21	13	12
28	7.6	5.5	5.8	5.2	5.6	14	54	125	44	18	12	12
29	9.1	5.8	6.0	5.2	---	15	60	120	48	16	12	11
30	10	5.5	6.0	5.2	---	17	59	112	48	15	11	11
31	8.5	---	5.8	5.0	---	17	---	118	---	15	14	---
TOTAL	210.1	201.9	219.0	175.5	156.9	264.1	759	3622	3288	912	381	425
MEAN	6.78	6.73	7.06	5.66	5.60	8.52	25.3	117	107	29.4	12.3	14.2
MAX	10	12	9.3	6.4	6.0	17	60	203	193	52	19	23
MIN	5.4	3.7	5.8	5.0	5.0	5.2	13	59	44	15	10	11
CFSM	.11	.11	.11	.09	.09	.14	.41	1.89	1.73	.47	.20	.23
IN.	.13	.12	.13	.11	.09	.16	.46	2.17	1.92	.55	.23	.25
AC-FT	417	400	434	348	311	524	1510	7180	6520	1810	756	843

CAL YR 1977 TOTAL 2594.0 MEAN 7.11 MAX 19 MIN 3.6 CFSM .12 IN 1.56 AC-FT 5150
WTR YR 1978 TOTAL 10526.5 MEAN 28.8 MAX 203 MIN 3.7 CFSM .47 IN 6.32 AC-FT 20880

12449950 METHOW RIVER NEAR PATEROS, WA

LOCATION.--Lat 48°04'39", long 119°59'02", in SE¼SW¼ sec.20, T.30 N., R.23 E., Okanogan County, Hydrologic Unit 17020008, on right bank 1.4 mi (2.3 km) downstream from Black Canyon Creek, 4.3 mi (6.9 km) northwest of Pateros, and at mile 6.7 (10.8 km).

DRAINAGE AREA.--1,772 mi^2 (4,589 km^2).

PERIOD OF RECORD.--April 1959 to current year. Water temperatures October 1968 to October 1970.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 900 ft (274 m) from topographic map. Prior to Dec. 17, 1964, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of no gage-height record, Oct. 2 to Nov. 28 and Dec. 5 to Jan. 30, which are poor. Diversions for irrigation of about 11,000 acres (45 km^2) above station (1959 Bureau of Reclamation land classification).

AVERAGE DISCHARGE.--19 years, 1,627 ft^3/s (46.08 m^3/s), 1,179,000 acre-ft/yr (1,450 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,800 ft^3/s (816 m^3/s) May 31, 1972, gage height, 12.25 ft (3.734 m); minimum daily, 150 ft^3/s (4.25 m^3/s) Jan. 8, 9, 10, 1974, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1920, 46,700 ft^3/s (1,320 m^3/s) May 29, 1948, by slope-area measurement of peak flow at site 1 mi (1.6 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,000 ft^3/s (453 m^3/s) June 6, gage height, 9.27 ft (2.825 m); minimum daily, 200 ft^3/s (5.66 m^3/s) Jan. 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	350	400	390	210	298	325	2330	3950	4850	5940	1180	712
2	340	480	370	200	307	321	2190	4100	6090	5430	1120	726
3	340	400	430	200	303	312	2030	4430	8260	5280	1060	754
4	330	350	460	210	294	312	1930	4340	11100	5260	1020	733
5	330	380	420	210	294	321	1870	3980	13600	5230	968	768
6	320	320	400	220	316	321	1740	3640	15000	4970	907	817
7	320	300	380	230	340	345	1650	3440	13500	4710	847	945
8	320	290	360	240	360	340	1610	3560	12600	4370	803	1060
9	310	280	350	260	370	335	1590	4090	11500	4870	768	1060
10	310	310	340	270	350	335	1640	4790	9330	3660	733	1290
11	310	320	340	270	340	340	1870	4930	7810	3220	712	2070
12	300	320	340	270	335	345	2060	4630	6870	2840	691	1890
13	300	310	360	270	330	350	2090	4430	6750	2600	663	1700
14	300	320	370	270	321	360	2090	4480	6420	2490	637	1550
15	290	340	370	280	321	360	2150	4610	5870	2410	624	1450
16	290	330	370	300	308	365	2190	4450	5320	2470	611	1360
17	290	290	360	310	298	370	2100	4300	5260	2720	599	1300
18	280	260	340	330	303	380	2010	4280	5890	2410	575	1280
19	280	240	320	310	312	405	2000	4670	6090	2190	563	1210
20	280	230	310	300	307	441	2020	5830	5980	2000	563	1170
21	280	220	300	310	307	485	2030	7520	6160	1860	563	1130
22	270	220	290	300	307	563	2010	8470	6400	1770	557	1130
23	270	230	290	300	303	719	1970	7490	5980	1720	557	1180
24	300	260	250	300	307	907	1900	6470	5980	1660	599	1280
25	340	300	230	300	312	1030	1880	5650	5720	1560	670	1270
26	320	390	230	300	321	1180	2000	5030	5300	1460	712	1260
27	310	370	230	300	321	1340	2500	4610	5110	1700	670	1240
28	300	350	230	300	325	1550	3460	4540	5560	1720	624	1220
29	310	390	240	300	---	1760	3910	4540	6110	1490	593	1180
30	340	390	240	300	---	2060	4020	4370	6580	1360	575	1140
31	360	---	220	298	---	2300	---	4360	---	1250	599	---
TOTAL	9590	9590	10130	8468	8910	20877	64840	149980	226990	91820	22355	35875
MEAN	309	320	327	273	318	673	2161	4838	7566	2962	721	1196
MAX	360	480	460	330	370	2300	4020	8470	15000	5940	1180	2070
MIN	270	220	220	200	294	312	1590	3440	4850	1250	557	712
AC-FT	19020	19020	20090	16800	17670	41410	128600	297500	450200	182100	44340	71160

CAL YR 1977 TOTAL 196692 MEAN 539 MAX 3900 MIN 180 AC-FT 390100
WTR YR 1978 TOTAL 659425 MEAN 1807 MAX 15000 MIN 200 AC-FT 1308000

12449954 METHOW RIVER AT 2ND BRIDGE NEAR PATEROS, WA

LOCATION.--Lat 48°04'29", long 119°57'20", in NW¼NE¼ sec.28, T.30 N., R.23 E., Okanogan County, Hydrologic Unit 17020008, at bridge on State Highway 153, 1.7 mi (2.7 km) downstream from gaging station, 3.1 mi (5.0 km) downstream from Black Canyon Creek, 3.0 mi (4.8 km) west of Pateros, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--1,777 mi^2 (4,602 km^2).

PERIOD OF RECORD.--Water years 1959-1962, 1963-1970 (partial- record station), 1972, 1975 to current year.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is fair. Water temperature records collected October 1968 to October 1970 at gaging station 1.7 mi (2.7 km) upstream. Records prior to October 1974 published as 12449950 "Methow River near Pateros" at an erroneous location, but were actually obtained at the present site.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW (CFS)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)
OCT , 1977										
25...	1120	370	--	200	7.8	7.2	10	1	12.8	92
NOV										
15...	1145	600	--	140	8.3	6.3	5	1	13.4	88
DEC										
13...	1130	430	--	147	8.0	.5	10	3	14.4	86
FEB , 1978										
21...	1155	--	305	198	8.0	5.3	5	1	13.6	92
MAR										
14...	1140	--	355	205	8.0	6.4	5	3	--	93
APR										
11...	1140	--	1920	160	8.2	9.8	20	4	11.2	76
MAY										
09...	1145	--	4350	110	7.8	10.2	15	4	10.7	49
JUN										
06...	1135	--	16000	55	7.6	8.1	65	77	10.9	25
JUL										
11...	1200	--	3160	87	7.8	13.5	15	1	11.8	38
AUG										
22...	1135	--	566	172	8.0	16.9	10	4	9.5	77
SEP										
12...	1135	--	1810	110	7.8	12.0	25	2	10.2	50

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
OCT , 1977									
25...	1	28	5.2	3.9	8	.2	.8	110	0
NOV									
15...	0	27	4.9	3.9	9	.2	.8	110	0
DEC									
13...	7	27	4.5	4.2	9	.2	1.0	96	0
FEB , 1978									
21...	2	28	5.3	4.6	10	.2	1.0	110	0
MAR									
14...	2	28	5.5	3.8	8	.2	.9	110	0
APR									
11...	5	24	4.0	2.7	7	.1	.7	87	0
MAY									
09...	0	15	2.7	2.5	10	.2	.8	60	0
JUN									
06...	2	8.1	1.0	1.5	12	.1	.4	27	0
JUL									
11...	0	12	2.0	2.0	10	.1	.5	46	0
AUG									
22...	2	24	4.1	5.5	13	.3	.8	91	0
SEP									
12...	4	16	2.5	2.6	10	.2	.5	56	0

12449954 METHOW RIVER AT 2ND BRIDGE NEAR PATEROS, WA--Continued

WATER QUALITY DATA

DATE	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)
OCT , 1977									
25...	90	2.8	11	.7	.20	.03	.00	.00	.00
NOV									
15...	90	.9	12	.9	.16	.06	.01	.00	.00
DEC									
13...	79	1.5	9.3	1.3	.24	.02	.01	.00	.00
FEB , 1978									
21...	90	1.8	8.4	.8	.18	.02	.01	.00	.00
MAR									
14...	90	1.8	7.7	1.2	.17	.05	.01	.00	.00
APR									
11...	71	.9	9.7	.9	.07	.04	.02	.00	.00
MAY									
09...	49	1.5	5.1	.7	.05	.04	.04	.00	.00
JUN									
06...	22	1.1	3.6	.8	.04	.02	.21	.01	.03
JUL									
11...	38	1.2	3.7	.5	.14	.02	.01	.00	.00
AUG									
22...	75	1.5	4.2	6.0	.21	.04	.00	.00	.00
SEP									
12...	46	1.4	6.2	.4	.08	.02	.01	.00	.00

DATE	ARSENIC DISSOLVED (UG/L AS AS)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	LEAD, DISSOLVED (UG/L AS PB)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)
OCT , 1977									
25...	1	0	0	0	9	.0	0	0	10
NOV									
15...	1	0	0	0	10	.0	0	0	10
DEC									
13...	1	0	0	1	5	.2	0	0	10
FEB , 1978									
21...	0	0	0	0	1	.0	3	0	0
MAR									
14...	1	0	0	2	2	.0	0	0	0
APR									
11...	0	1	0	0	4	.0	0	0	0
MAY									
09...	0	1	0	1	11	.0	0	0	5
JUN									
06...	0	0	0	2	4	.0	0	0	20
JUL									
11...	1	<1	0	1	4	.0	0	0	<3
AUG									
22...	1	0	0	0	9	.1	0	0	0
SEP									
12...	0	0	0	0	8	.0	0	0	10

12450700 COLUMBIA RIVER BELOW WELLS DAM, WA

LOCATION.--Lat 47°56'48", long 119°51'56", in SW¼SE¼ sec.6, T.28 N., R.24 E., Chelan County, Hydrologic Unit 17020005, at powerhouse of Wells Dam, 0.7 mi (1.1 km) northeast of Azwell, and at mile 515.9 (830.1 km).

DRAINAGE AREA.--86,100 mi² (223,000 km²), approximately.

PERIOD OF RECORD.--October 1967 to current year. October 1953 to September 1967 (monthly discharge only) on file in district office.

GAGE.--Water-stage recorder. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Bechtel Corporation). Prior to Oct. 1, 1970, at site 0.8 mi (1.3 km) downstream at same datum. Auxiliary water-stage recorder 6.8 mi (10.9 km) downstream from base gage at same datum.

REMARKS.--Records fair. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--25 years, 119,900 ft³/s (3,396 m³/s) 86,870,000 acre-ft/yr (107,000 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 402,000 ft³/s (11,400 m³/s) June 15, 1972; maximum elevation, 731.92 ft (223.089 m) June 16, 1972; minimum discharge, 17,900 ft³/s (507 m³/s) Oct. 5, 1970, elevation, 703.88 ft (214.543 m), from powerplant records.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 172,000 ft³/s (4,870 m³/s) May 23; minimum daily discharge, 35,600 ft³/s (1,010 m³/s) Oct. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58200	81000	89800	66400	131000	108000	120000	132000	126000	73200	93400	79900
2	44600	75800	52000	92000	124000	108000	110000	136000	114000	72800	81200	77000
3	76900	90600	41800	108000	112000	122000	112000	150000	74200	112000	86700	61600
4	71500	78800	46100	86000	93400	104000	128000	147000	75600	54600	93100	84000
5	72600	56200	74400	89500	65200	87400	140000	148000	117000	96200	96100	108000
6	79800	60400	73200	105000	104000	89000	130000	146000	109000	118000	75600	128000
7	64800	77400	88400	80200	83600	86000	133000	105000	148000	118000	114000	154000
8	58400	93400	86400	74000	80400	81000	128000	130000	127000	132000	104000	143000
9	52600	79200	78600	93200	87000	85300	115000	160000	120000	110000	108000	158000
10	68200	62300	81300	117000	89800	84200	130000	144000	133000	124000	118000	136000
11	72300	77300	78200	124000	69500	64900	142000	145000	138000	133000	103000	130000
12	68800	60400	82200	89800	77800	55900	148000	148000	141000	136000	100000	108000
13	57800	47600	72400	97200	105000	89300	150000	138000	122000	141000	78700	127000
14	68000	85600	69600	92600	114000	84680	152000	126000	129000	149000	126000	120000
15	41900	97000	84200	90400	108000	92100	142000	134000	112000	147000	89900	112000
16	41900	97200	85600	90800	116000	88500	138000	138000	112000	140000	92000	107000
17	81800	101000	74000	91300	112000	71800	148000	154000	107000	120000	87600	92000
18	75500	100000	68800	84800	96200	65600	132000	124000	109000	112000	86900	106000
19	77000	91900	87000	91000	63300	52500	140000	136000	112000	138000	83200	94700
20	79800	89500	88200	101000	110000	96800	158000	136000	102000	131000	84200	101000
21	72800	118000	95000	81900	116000	84000	144000	149000	106000	142000	93000	111000
22	53300	98800	91800	86600	119000	94900	122000	154000	96200	130000	84400	94800
23	39200	98100	72900	114000	122000	108000	122000	172000	94400	113000	86400	82300
24	62600	62000	38100	117000	120000	109000	122000	144000	106000	121000	89200	62500
25	67000	72000	40500	121000	103000	102000	131000	162000	86600	116000	90200	97400
26	70800	57800	66800	121000	68600	74200	158000	154000	107000	105000	87100	89800
27	87000	38300	96600	123000	116000	109000	150000	146000	107000	102000	47200	94000
28	77800	72200	92000	108000	115000	113000	132000	152000	112000	120000	103000	101000
29	48800	68400	88400	88900	---	89700	124000	147000	117000	106000	85200	90800
30	35600	91000	77100	134000	---	99600	97200	150000	103000	110000	78200	110000
31	71000	---	71600	137000	---	118000	---	128000	---	128000	98600	---
TOTAL	1998300	2379200	2317000	3088600	2821800	2818300	3998200	4427000	3363000	3642800	2836100	3160000
MEAN	64460	79310	74740	99630	100800	90910	133300	142800	112100	117500	91490	105400
MAX	87000	118000	96600	137000	131000	122000	158000	172000	148000	149000	126000	158000
MIN	35600	38300	38100	66400	63300	52500	97200	105000	74200	54600	47200	61600
AC-FT	3964000	4719000	4596000	6126000	5597000	5590000	7930000	8781000	6671000	7225000	5625000	6269000

CAL YR 1977 TOTAL 29861600 MEAN 79620 MAX 155000 MIN 26400 AC-FT 57640000
WTR YR 1978 TOTAL 36851100 MEAN 101000 MAX 172000 MIN 35600 AC-FT 73090000

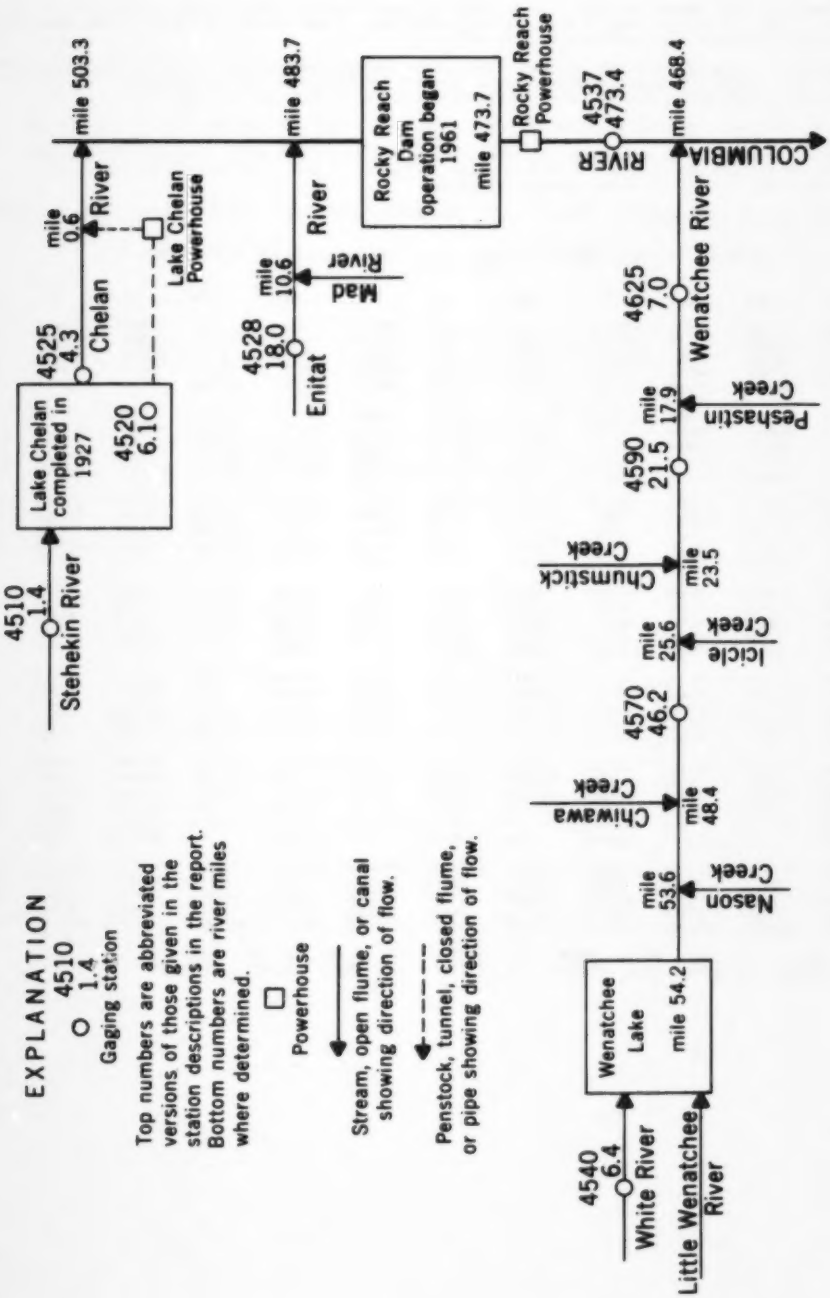

Figure 12. Gaging stations in Columbia River basin from Chelan to Wenatchee Rivers.

12451000 STEHEKIN RIVER AT STEHEKIN, WA

LOCATION.--Lat 48°19'47", long 120°41'26", in NE¼SE¼ sec.26, T.33 N., R.17 E., Chelan County, Hydrologic Unit 17020009, Lake Chelan National Recreation Area, on left bank 1,100 ft (335 m) upstream from Boulder Creek, 1.4 mi (2.3 km) upstream from Lake Chelan, and 2.1 mi (3.4 km) northwest of Stehekin. Records include flow of Boulder Creek.

DRAINAGE AREA.--344 mi^2 (891 km^2), includes that of Boulder Creek.

PERIOD OF RECORD.--October 1910 to October 1915, October 1926 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 412: 1914. WSP 1316: 1911(M), 1914-15(M). WSP 1446: 1912(M). WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,098.5 ft (334.82 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 17, 1911, nonrecording gage 0.4 mi (0.6 km) upstream from mouth at Lake Chelan at different datums (datum change made June 13, 1911). Aug. 17, 1911, to Oct. 31, 1915, nonrecording gage 0.2 mi (0.3 km) downstream from Boulder Creek at different datum.

REMARKS.--Records good except those for period of no gage-height record, which are fair. No known regulation or diversion.

AVERAGE DISCHARGE.--57 years, 1,427 ft^3/s (40.41 m^3/s) 56.33 in/yr (1,431 mm/yr) 1,034,000 acre-ft/yr (1,270 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,900 ft^3/s (535 m^3/s) May 29, 1948, gage height, 29.00 ft (8.839 m), from rating curve extended above 11,000 ft^3/s (312 m^3/s) on basis of slope-area measurement of peak flow; minimum, 56 ft^3/s (1.59 m^3/s) Jan. 21, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,500 ft^3/s (184 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 5	2200	*10,100	286	*25.63	7.812

Minimum daily discharge, 228 ft^3/s (6.46 m^3/s) Mar. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	355	452	821	402	260	250	1990	2650	3490	4680	2030	1470
2	339	956	2350	384	251	260	1740	2850	4810	4450	2060	1520
3	324	644	2440	416	265	228	1540	2830	6550	4240	2120	1180
4	314	570	1750	416	270	265	1420	2570	8260	4250	2150	1140
5	307	555	1370	416	272	245	1320	2280	9020	4270	1920	949
6	300	510	1250	406	280	232	1210	2120	8270	4250	1640	1080
7	290	505	1080	398	290	248	1140	2230	7050	4320	1600	915
8	286	465	972	384	275	260	1110	2640	6400	4300	1650	801
9	290	535	919	371	290	270	1120	3220	5690	3760	1780	928
10	282	535	884	355	275	275	1270	3440	4520	2960	1570	1400
11	279	540	891	339	260	280	1600	3150	3780	2420	1360	1110
12	279	545	863	324	288	284	1560	2830	3620	2130	1220	925
13	411	555	877	318	260	285	1520	2760	3510	2450	1050	854
14	335	632	870	314	260	290	1420	2830	3240	2760	943	798
15	310	620	870	307	255	295	1380	2800	2960	2740	1400	845
16	310	609	814	304	240	300	1360	2640	2770	3150	1280	797
17	310	560	770	300	240	315	1280	2650	3100	2810	979	756
18	314	475	734	290	258	335	1240	2850	3890	2640	897	711
19	290	465	710	280	240	420	1230	3480	3940	2480	1040	672
20	282	460	680	266	245	495	1280	4540	4050	2360	886	647
21	279	402	656	280	242	626	1280	5460	4410	2450	822	656
22	272	388	626	265	250	842	1270	4810	4590	2650	816	791
23	293	424	598	251	250	1140	1220	3720	4430	2760	754	1380
24	310	438	570	264	250	1300	1220	3150	4080	2660	877	1420
25	438	515	545	280	256	1530	1280	2750	3480	2370	985	1440
26	363	1320	520	260	258	1820	1760	2460	3380	2530	784	1330
27	343	1090	510	260	256	2020	2710	2480	3950	3090	745	1390
28	324	740	485	260	260	2140	2930	2780	5140	2350	767	1090
29	328	884	480	250	---	2170	2840	2710	5980	2120	837	968
30	347	794	460	240	---	2288	2760	2550	5370	1980	957	908
31	347	---	424	250	---	2210	---	2770	---	1950	1140	---
TOTAL	9851	18183	27789	9850	7296	23930	47000	93000	143650	94240	38979	30863
MEAN	318	606	896	318	261	772	1567	3000	4788	3040	1257	1029
MAX	438	1320	2440	416	290	2280	2930	5460	9020	4680	2150	1520
MIN	272	388	424	240	240	228	1110	2120	2770	1950	745	647
CFSM	.92	1.76	2.61	.92	.76	2.24	4.56	8.72	13.9	8.84	3.65	2.99
IN.	1.07	1.97	3.01	1.07	.79	2.59	5.08	10.06	15.53	10.19	4.22	3.34
AC-FT	19540	36070	55120	19540	14470	47470	93220	184500	284900	186900	77310	61220

CAL YR 1977 TOTAL 338377 MEAN 927 MAX 4940 MIN 220 CFSM 2.70 IN 36.59 AC-FT 671200
WTR YR 1978 TOTAL 544631 MEAN 1492 MAX 9020 MIN 228 CFSM 4.34 IN 58.90 AC-FT 1080000

NOTE.--No gage-height record Jan. 14 to Mar. 17.

12452000 LAKE CHELAN AT CHELAN, WA

LOCATION.--Lat 47°50'11", long 120°03'37", near center of sec.15, T.27 N., R.22 E., Chelan County, Hydrologic Unit 17020009, on south shore of Lake Chelan at Lakeside, 2.1 mi (3.4 km) west of Chelan.

DRAINAGE AREA.--924 mi^2 (2,393 km^2).

PERIOD OF RECORD.--September 1897 to December 1899, January to June 1905 and December 1910 to September 1911 (fragmentary gage heights only); October 1911 to current year. Records of change in contents prior to October 1911, published in WSP 482 and 492 in conjunction with records for Chelan River near Chelan, have been found to be unreliable and should not be used. Month-end contents October 1911 to September 1950 published in WSP 1316, chemical analyses June 1971 to August 1972.

REVISED RECORDS.--WSP 1246: 1951. WSP 1286: 1952. WSP 1933: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1912. Prior to Jan. 1, 1900, nonrecording gage at Lakeside about 1 mi (1.6 km) west of Chelan at datum 1,070.18 ft (326.191 m) National Geodetic Vertical Datum of 1912. Jan. 1 to June 30, 1905, nonrecording gage at upper highway bridge at Chelan at different datum. Dec. 5, 1910, to Nov. 13, 1927, nonrecording gage at Forest Service boat landing at Chelan at datum 1,076.07 ft (327.986 m) National Vertical Datum of 1912.

REMARKS.--Reservoir is formed by low concrete dam at lake outlet completed Sept. 3, 1927. Usable capacity between elevations 1,079 (328.9 m) and 1,100 ft (335.3 m) 677,400 acre-ft (835 hm^3). Regulation between these elevations is allowed by stipulation of the Federal Power Commission. Water is used for power development. Elevation of lake maintained between 1,092 (332.8 m) and 1,100 ft (335.3 m) during period Aug. 16 to Sept. 15 for scenic effect and recreational purposes. Diversions for irrigation of about 6,280 acres (25 km^2) with an annual depletion of about 11,000 acre-ft (13.6 hm^3), 1946 estimated.

COOPERATION.--Gage-height record collected in cooperation with Public Utility District No. 1 of Chelan County.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,100.08 ft (335.304 m) Aug. 7, 1976, Aug. 4, 1978 (affected by seiche action); maximum contents, 678,700 acre-ft (837 hm^3) Aug. 4, 1978, elevation, 1,100.04 ft (335.292 m); minimum since completion of dam in 1927, 1,079.68 ft (329.086 m) Apr. 3, 4, 1937, Apr. 3, 1970, contents, 21,350 acre-ft (26.3 hm^3); minimum elevation, 1,076.78 ft (328.203 m), Jan. 27, 28, Dec. 2-5, 1898.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,100.08 ft (335.304 m) Aug. 4 (affected by seiche action), contents, 678,700 acre-ft (837 hm^3); minimum elevation, 1,083.33 ft (330.199 m) Mar. 21-23, contents, 137,000 acre-ft (169 hm^3).

Capacity table (elevation in feet, and usable contents, in acre-feet)
(Based on data by the Washington Water Power Co.)

1,080	31,500	1,090	350,900	1,100	677,400
1,085	190,200	1,095	513,300		

ELEVATION, IN FEET ABOVE NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1095.37	1093.15	1091.82	1090.53	1087.59	1085.07	1084.02	1086.91	1093.92	1099.43	1099.89	1099.22
2	1095.30	1093.20	1091.92	1090.41	1087.51	1084.94	1084.08	1087.17	1094.26	1099.44	1099.86	1099.24
3	1095.23	1093.15	1092.10	1090.31	1087.42	1084.85	1084.10	1087.44	1094.79	1099.50	1099.88	1099.20
4	1095.14	1093.07	1092.11	1090.23	1087.32	1084.75	1084.09	1087.63	1095.50	1099.56	1099.94	1099.18
5	1095.07	1093.01	1092.10	1090.18	1087.23	1084.67	1084.13	1087.80	1096.30	1099.56	1099.89	1099.13
6	1094.99	1092.97	1092.14	1090.11	1087.16	1084.57	1084.13	1087.96	1097.03	1099.60	1099.86	1099.10
7	1094.92	1092.93	1092.16	1090.02	1087.10	1084.52	1084.13	1088.13	1097.69	1099.64	1099.82	1099.04
8	1094.84	1092.84	1092.06	1089.88	1087.03	1084.42	1084.16	1088.31	1098.23	1099.74	1099.82	1099.03
9	1094.75	1092.75	1092.01	1089.79	1086.99	1084.35	1084.13	1088.54	1098.37	1099.72	1099.84	1098.96
10	1094.68	1092.70	1091.97	1089.70	1086.90	1084.25	1084.13	1088.78	1098.23	1099.72	1099.86	1099.06
11	1094.59	1092.65	1091.95	1089.59	1086.79	1084.16	1084.16	1089.05	1098.18	1099.78	1099.84	1099.25
12	1094.52	1092.58	1091.93	1089.50	1086.69	1084.08	1084.17	1089.27	1098.25	1099.80	1099.80	1099.18
13	1094.45	1092.52	1091.91	1089.40	1086.60	1084.01	1084.25	1089.48	1098.32	1099.80	1099.77	1099.16
14	1094.37	1092.52	1091.91	1089.32	1086.50	1084.00	1084.33	1089.69	1098.34	1099.80	1099.72	1099.17
15	1094.28	1092.50	1091.91	1089.24	1086.42	1083.78	1084.45	1089.99	1098.29	1099.84	1099.71	1099.15
16	1094.21	1092.49	1091.83	1089.17	1086.31	1083.71	1084.61	1090.19	1098.21	1099.81	1099.69	1099.13
17	1094.13	1092.43	1091.79	1089.09	1086.21	1083.62	1084.68	1090.31	1098.17	1099.89	1099.65	1099.09
18	1094.06	1092.31	1091.70	1088.98	1086.10	1083.52	1084.78	1090.47	1098.26	1099.92	1099.57	1099.04
19	1094.00	1092.21	1091.64	1088.88	1086.01	1083.45	1084.88	1090.73	1098.30	1099.84	1099.53	1098.98
20	1093.92	1092.11	1091.55	1088.78	1085.92	1083.41	1085.01	1091.16	1098.30	1099.79	1099.50	1098.93
21	1093.81	1092.04	1091.48	1088.70	1085.81	1083.36	1085.10	1091.69	1098.43	1099.88	1099.46	1098.90
22	1093.74	1092.00	1091.38	1088.62	1085.73	1083.35	1085.20	1092.11	1098.53	1099.85	1099.42	1098.87
23	1093.67	1091.89	1091.29	1088.49	1085.63	1083.40	1085.29	1092.43	1098.67	1099.90	1099.38	1098.88
24	1093.62	1091.83	1091.21	1088.37	1085.55	1083.44	1085.39	1092.65	1098.80	1099.90	1099.35	1098.89
25	1093.55	1091.83	1091.13	1088.28	1085.47	1083.51	1085.49	1092.87	1098.83	1099.85	1099.35	1098.95
26	1093.49	1091.91	1091.04	1088.18	1085.36	1083.55	1085.62	1092.97	1098.87	1099.84	1099.32	1098.97
27	1093.40	1091.87	1090.96	1088.09	1085.27	1083.62	1085.91	1093.11	1099.06	1099.88	1099.27	1098.97
28	1093.31	1091.85	1090.86	1087.98	1085.19	1083.71	1086.15	1093.32	1099.27	1099.88	1099.25	1098.93
29	1093.27	1091.90	1090.78	1087.87	---	1083.78	1083.37	1093.45	1099.50	1099.90	1099.23	1098.91
30	1093.22	1091.85	1090.69	1087.76	---	1083.88	1086.64	1093.58	1099.53	1099.90	1099.20	1098.87
31	1093.15	---	1090.61	1087.68	---	1083.95	---	1093.78	---	1099.93	1099.19	---
MEAN	1094.23	1092.44	1091.61	1089.13	1086.42	1083.99	1084.69	1090.35	1097.88	1099.77	1099.61	1099.05
MAX	1095.37	1093.20	1092.16	1090.53	1087.59	1085.07	1086.64	1093.78	1099.53	1099.93	1099.94	1099.25
MIN	1093.15	1091.83	1090.61	1087.68	1085.19	1083.35	1083.37	1086.91	1093.92	1099.43	1099.19	1098.87
†	452,800	410,900	370,000	274,200	194,000	158,000	243,700	473,000	660,900	675,400	648,100	638,200
‡	-75,300	-41,900	-40,900	-95,800	-80,200	-36,000	+85,700	+229,300	+187,900	+14,500	-27,300	-9,900

CAL YR 1977: MEAN 1,091.86 MAX 1,097.48 MIN 1,085.34 ‡ +23,600
WTR YR 1978: MEAN 1,092.47 MAX 1,099.94 MIN 1,083.35 ‡ +110,100

† Acre-feet, at 2400 hours, on last day of mnth.
‡ Change in contents, in acre-feet.

12452500 CHELAN RIVER AT CHELAN, WA

LOCATION.--Lat 47°50'05", long 120°00'43", in S½SE¼ sec.13, T.27 N., R.22 E., Chelan County, Hydrologic Unit 17020009, near right bank in forebay upstream from control dam at outlet of Lake Chelan, 0.4 mi (0.6 km) south of Chelan, and at mile 4.3 (6.9 km).

DRAINAGE AREA.--924 m^2 (2,393 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1903 to current year. Published as "below Chelan Lake" 1904-05. Adjusted records for October 1903 to September 1911, published in WSP 482, 492, and 870 are unreliable and should not be used.

REVISED RECORDS.--WSP 482: 1904-13. WSP 612: 1924. WSP 1246: 1951. WSP 1286: 1952. WSP 1933: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder and concrete dam. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 7, 1927, nonrecording gage at site 800 ft (244 m) downstream and Jan. 7 to Sept. 30, 1927, nonrecording gage about 500 to 1,000 ft (152 to 305 m) downstream at same datum. Oct. 1, 1927, to Nov. 10, 1928, nonrecording gage and Nov. 11, 1928, to Mar. 19, 1939, water-stage recorder at sites 2.5 mi (4.0 km) downstream at same datum.

REMARKS.--Records good. Unmeasured water that is diverted for irrigation above station is a small percentage of total runoff. Chelan County Public District No. 1 diverts water at Chelan to develop about 40,000 KW and to irrigate 900 acres (3.6 km^2) near Chelan. This quantity is included in records of daily discharge. Diversions for irrigation of about 6,280 acres (25 km^2), depletion 11,000 acre-ft (13.6 hm^3) 1964 estimate. Flow regulated by Lake Chelan (see sta 12452000).

COOPERATION.--Records of water used for power and irrigation furnished by the Public Utility District No. 1 of Chelan County.

AVERAGE DISCHARGE.--74 years (water years 1905-78), 2,067 ft^3/s (58.54 m^3/s) 30.38 in/yr (772 mm/yr), 1,498,000 acre-ft (1,850 hm^3/yr), adjusted for storage since October 1911.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 18,400 ft^3/s (521 m^3/s) June 3, 1968; no flow part of day Jan. 30, 1917, when lake outlet was blocked with ice, and at other times owing to artificial regulation.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 11,100 ft^3/s (314 m^3/s) June 9; minimum daily, 18 ft^3/s (0.51 m^3/s) June 3-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1510	1490	1700	2100	2150	2130	2150	307	818	8330	2440	1560
2	1510	1490	1800	2020	2100	2150	2150	307	328	5800	2330	1560
3	1510	1480	2040	2100	2100	2140	2160	357	18	5730	2220	1550
4	1510	1480	2000	2030	2100	2150	2150	267	18	5710	2650	1540
5	1510	1490	2000	2090	2120	2150	2160	727	1970	5730	3860	1540
6	1510	1500	2080	2020	2100	2150	2150	757	2220	5560	2080	1520
7	1510	1500	2090	2190	2110	2150	2060	727	2220	5270	1910	1530
8	1510	1500	1990	2190	2100	2130	1430	1020	3880	5960	1900	1520
9	1510	1500	2100	2160	2100	2140	2160	937	11100	6410	1920	1500
10	1510	1500	2090	2170	2100	2160	2150	945	10000	2900	1920	1510
11	1510	1500	2090	2120	2110	2170	2150	935	5720	2630	1920	1510
12	1510	1500	2100	2180	2110	2180	1610	925	4790	2630	1920	1510
13	1510	1500	2110	2120	2090	2160	796	945	5180	2440	1920	1510
14	1510	1480	2110	2170	2130	2160	1450	945	5810	2220	1830	1510
15	1510	1500	2110	2160	2180	2140	476	945	6180	7440	1820	1510
16	1510	1450	2100	2190	2130	2140	766	945	5760	2910	1820	1490
17	1510	1500	2120	2140	2180	2150	816	948	4450	2630	1820	1510
18	1510	1500	2130	2150	2170	2160	566	1010	4890	3140	1700	1520
19	1500	1490	2110	2140	1730	2170	376	958	6640	4080	1530	1590
20	1510	1490	2110	2130	2160	2140	686	278	5500	2630	1520	1570
21	1510	1110	2100	2140	2170	2140	686	118	4280	2500	1520	1550
22	1510	1220	2110	2120	2180	2120	816	688	5720	2430	1550	1540
23	1510	1500	2100	2120	2170	2130	386	968	3670	2780	1570	1550
24	1510	1480	2120	2120	2160	2120	666	975	5470	4430	1570	1560
25	1500	1490	2120	2110	2170	2130	726	1500	5530	3620	1570	1570
26	1500	1500	2120	2120	2180	2140	687	1920	3710	3290	1570	1570
27	1500	1500	2100	2110	2160	2130	657	2100	2940	3310	1580	1580
28	1500	1500	2100	2120	2150	2130	477	1520	4010	2800	1550	1780
29	1500	1500	2100	2100	---	2150	157	1540	6130	2440	1570	1790
30	1500	1620	2120	2100	---	2160	37	1200	10100	2440	1550	1760
31	1500	---	2110	2050	---	2160	---	868	---	2690	1560	---
TOTAL	46730	44250	64180	65800	59430	66550	35707	28582	139052	122880	58190	46810
MEAN	1507	1475	2070	2123	2123	2147	1190	922	4635	3964	1877	1560
MAX	1510	1620	2130	2190	2180	2180	2160	2100	11100	8330	3860	1790
MIN	1500	1110	1700	2020	1730	2120	37	118	18	2220	1520	1490
AC-FT	92690	87770	127300	130500	117900	132000	70820	56690	275800	243700	115400	92850
†	-75,300	-41,900	-40,900	-95,800	-80,200	-36,000	+85,700	+229,300	+187,900	+14,500	-27,300	-9,900
MEAN‡	283	771	1,405	564	679	1,561	2,630	4,651	7,793	4,199	1,433	1,394
CFSM‡	0.31	.83	1.52	.61	.73	1.69	2.85	5.03	8.43	4.54	1.55	1.51
IN‡	0.35	.93	1.75	.70	.77	1.95	3.18	5.81	9.41	5.24	1.79	1.68
AC-FT‡	17,390	45,870	86,400	34,700	37,700	96,000	156,500	286,000	463,700	258,200	88,100	82,950

CAL YR 1977: TOTAL 408,488 MEAN 1,119 MAX 2,130 MIN 12 AC-FT 810,200
DO.....: MEAN‡ 1,152 CFSM‡ 1.25 IN‡ 16.92 AC-FT‡ 833,800
WTR YR 1978: TOTAL 778,161 MEAN 2,132 MAX 11,100 MIN 18 AC-FT 1,543,000
DO.....: MEAN‡ 2,285 CFSM‡ 2.47 IN‡ 33.56 AC-FT‡ 1,654,000

† Change in contents, in acre-feet, in Lake Chelan.
‡ Adjusted for change in contents in Lake Chelan.

12452500 CHELAN RIVER AT CHELAN, WA --Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962-1972, 1975 to current year.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance date furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
OCT , 1977							
25...	1045	1500	60	7.4	12.8	5	1
NOV							
15...	1110	1500	51	7.0	10.5	25	15
DEC							
13...	1040	2110	53	7.4	6.6	5	2
JAN , 1978							
10...	1035	2170	51	7.6	4.6	5	7
FEB							
21...	1120	2170	56	7.4	4.9	30	1
MAR							
14...	1100	2160	55	7.7	6.2	5	1
APR							
11...	1055	2150	60	8.0	9.8	15	3
MAY							
09...	1100	937	55	7.3	15.0	0	4
JUN							
06...	1055	2220	50	7.7	20.6	5	3
JUL							
11...	1110	2630	46	7.6	19.7	5	1
AUG							
22...	1050	1550	55	7.2	19.9	15	3
SEP							
12...	1050	1510	58	7.5	18.4	5	2

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977						
25...	10.4	.01	.05	.01	.00	.00
NOV						
15...	10.7	.01	.03	.01	.00	.00
DEC						
13...	11.4	.03	.03	.01	.00	.00
JAN , 1978						
10...	12.2	.05	.03	.01	.00	.00
FEB						
21...	12.6	.05	.03	.01	.00	.00
MAR						
14...	12.4	.04	.02	.00	.00	.00
APR						
11...	11.2	.03	.06	.01	.00	.00
MAY						
09...	9.9	.11	.07	.01	.00	.00
JUN						
06...	9.1	.04	.03	.00	.00	.00
JUL						
11...	11.5	.03	.05	.01	.00	.00
AUG						
22...	8.8	.01	.02	.01	.00	.00
SEP						
12...	8.9	.00	.01	.00	.00	.00

12452800 ENTIAT RIVER NEAR ARDENVOIR, WA

LOCATION.--Lat 47°49'07", long 120°25'19", in NE¼NE¼ sec.27, T.27 N., R.19 E., Chelan County, Hydrologic Unit 17020010, on left bank 0.5 mi (0.8 km) downstream from Stormy Creek, 6.0 mi (9.7 km) northwest of Ardenvoir, and at mile 18.0 (29.0 km).

DRAINAGE AREA.--203 mi^2 (526 km^2).

PERIOD OF RECORD.--September 1957 to current year. Water temperatures July 1968 to September 1970.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,560.97 ft (475.784 m) above mean sea level, unadjusted.

REMARKS.--Records excellent. No regulation or diversion.

AVERAGE DISCHARGE.--21 years, 393 ft^3/s (11.13 m^3/s) 26.29 in/yr (668 mm/yr), 284,700 acre-ft/yr (351 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,430 ft^3/s (182 m^3/s) June 10, 1972, gage height, 8.98 ft (2.737 m); minimum daily, 25 ft^3/s (0.71 m^3/s) Dec. 17, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,790 ft^3/s (107 m^3/s) June 6, gage height, 7.18 ft (2.188 m); minimum discharge, 49 ft^3/s (1.39 m^3/s) Nov. 20, 21, gage height, 0.84 ft (0.256 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	90	185	112	91	89	541	952	1280	1750	368	182
2	82	218	450	113	89	91	510	973	1550	1530	359	220
3	82	130	474	125	93	80	476	1010	2110	1420	340	192
4	80	114	371	120	93	96	458	988	2840	1360	330	187
5	78	107	320	120	93	92	430	908	3420	1320	300	180
6	77	101	302	114	98	89	402	645	3630	1350	270	203
7	76	99	281	117	102	95	380	833	3240	1390	270	194
8	75	87	251	113	99	93	372	897	3000	1320	260	180
9	76	96	229	112	102	93	367	1050	2700	1220	270	203
10	73	95	227	110	97	94	394	1200	2230	1040	250	339
11	72	99	230	110	91	95	451	1200	1840	874	240	292
12	71	96	223	110	98	96	466	1130	1620	773	230	257
13	72	93	232	108	95	99	477	1080	1510	726	210	235
14	71	102	254	106	93	100	472	1070	1440	743	200	223
15	69	105	240	106	93	100	493	1040	1340	739	250	289
16	68	102	222	106	86	104	534	1010	1250	790	230	198
17	67	91	212	106	87	111	499	1010	1270	740	210	194
18	67	68	197	106	94	130	490	1050	1450	670	187	187
19	66	60	184	106	90	158	481	1190	1580	614	183	176
20	65	55	156	103	90	185	480	1560	1630	581	179	168
21	64	52	148	105	90	212	474	1870	1720	558	175	167
22	64	62	140	102	90	261	467	1930	1780	558	175	170
23	65	80	135	96	91	328	451	1690	1700	567	167	212
24	71	80	130	96	91	355	441	1440	1610	556	194	224
25	87	103	125	98	92	350	443	1250	1530	511	228	226
26	77	266	120	96	93	375	500	1110	1440	501	193	227
27	71	198	118	93	93	411	646	1030	1430	558	176	226
28	69	166	118	93	93	439	849	1030	1610	490	168	222
29	73	210	122	91	---	473	947	1060	1940	444	165	212
30	80	179	123	90	---	517	987	1060	1950	406	167	202
31	78	---	115	90	---	545	---	1130	---	378	174	---
TOTAL	2270	3404	6634	3277	2607	6356	15398	35596	57640	26477	7118	6309
MEAN	73.2	113	214	106	93.1	205	513	1148	1921	854	230	210
MAX	87	266	474	125	102	545	987	1930	3630	1750	368	339
MIN	64	52	115	90	86	80	367	833	1250	378	165	167
CFSM	.36	.56	1.05	.52	.46	1.01	2.53	5.66	9.46	4.21	1.13	1.03
IN.	.42	.62	1.22	.60	.48	1.16	2.82	6.52	10.56	4.85	1.30	1.16
AC-FT	4500	6750	13160	6500	5170	12610	30540	70600	114300	52520	14120	12510

CAL YR 1977 TOTAL 67302 MEAN 184 MAX 940 MIN 43 CFSM .91 IN 12.33 AC-FT 133500
WTR YR 1978 TOTAL 173086 MEAN 474 MAX 3630 MIN 52 CFSM 2.34 IN 31.72 AC-FT 343300

12452990 ENTIAT RIVER NEAR ENTIAT, WA

LOCATION.--Lat 47°39'48", long 120°14'58", in NW¼SE¼ sec.18, T.25 N., R.21 E., Chelan County, Hydrologic Unit 17020010, at road bridge 1.2 mi (1.9 km) west of Entiat High School and at mile 1.4 (2.3 km).

DRAINAGE AREA.--419 mi^2 (1,085 km^2).

PERIOD OF RECORD.--Water years 1959-70, 1972, 1975 to current year.

REMARKS.--Water discharge from rating; discharge value is good. Prior to October 1974 published as 12453000. Prior to to September 1970 samples taken at site 1.7 mi (2.7 km) upstream.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
OCT , 1977							
25...	1000	58	100	7.1	6.6	15	2
NOV							
15...	1040	127	86	7.2	4.0	25	5
DEC							
13...	0955	310	76	7.1	2.0	15	6
JAN , 1978							
10...	1000	195	90	7.5	1.2	5	3
FEB							
21...	1045	155	129	7.5	3.9	35	1
MAR							
14...	1015	210	139	7.9	4.1	10	4
APR							
11...	1015	740	103	7.7	6.6	20	6
MAY							
09...	1020	1510	50	7.5	7.5	15	5
JUN							
06...	1020	3340	35	7.0	6.0	25	20
JUL							
11...	1030	1270	44	7.3	11.5	15	1
AUG							
22...	1000	253	89	7.3	13.0	10	3
SEP							
12...	1015	370	70	7.4	10.4	10	2

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977						
25...	12.6	.13	.03	.02	.00	.00
NOV						
15...	13.7	.08	.03	.02	.00	.00
DEC						
13...	13.6	.09	.03	.12	.01	.03
JAN , 1978						
10...	14.5	.13	.02	.02	.01	.03
FEB						
21...	13.8	.06	.04	.01	.00	.00
MAR						
14...	14.2	.01	.04	.03	.00	.00
APR						
11...	12.3	.01	.04	.07	.00	.00
MAY						
09...	11.0	.05	.04	.04	.00	.00
JUN						
06...	10.8	.05	.09	.49	.01	.03
JUL						
11...	12.4	.03	.03	.02	.01	.03
AUG						
22...	10.2	.11	.02	.01	.00	.00
SEP						
12...	10.7	.08	.03	.01	.00	.00

12453700 COLUMBIA RIVER AT ROCKY REACH DAM, WA

LOCATION.--Lat 47°31'28", long 120°18'04", in SW¼NW¼ sec.2, T.23 N., R.20 E., Chelan County, Hydrologic Unit 17020010, on right bank 0.5 mi (0.8 km) downstream from Rocky Reach Dam, 1.5 mi (2.4 km) downstream from Swakane Creek, 7.4 mi (11.9 km) north of Wenatchee, and at mile 473.4 (761.7 km).

DRAINAGE AREA.--87,800 mi^2 (227,400 km^2), approximately.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Auxiliary water-stage recorder. 1.9 mi (3.1 km) downstream from base gage at same datum.

REMARKS.--Records good. Flow regulated by nine major reservoirs and numerous smaller reservoirs and power-plants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km^2) in the United States and an additional 35,000 acres (142 km^2) in Canada.

AVERAGE DISCHARGE.--18 years, 118,800 ft^3/s (3,364 m^3/s) 86,070,000 acre-ft/yr (106,100 hm^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 535,000 ft^3/s (15,200 m^3/s) June 10, 1961, elevation, about 635.50 ft (193.700 m); minimum daily, 25,100 ft^3/s (711 m^3/s) Nov. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 172,000 ft^3/s (4,870 m^3/s) May 23; minimum daily, 39,500 ft^3/s (1,120 m^3/s) Nov. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60200	80200	80200	69200	136000	117000	121000	131000	130000	87600	102000	78100
2	46800	72100	59600	88900	128000	116000	111000	136000	119000	73200	76000	68600
3	75100	89100	52200	114000	116000	128000	113000	147000	77800	118000	89300	58300
4	72100	82400	53300	97700	102000	115000	130000	148000	78800	67600	93300	75800
5	74000	56800	77900	92700	65600	90900	139000	149000	131000	108000	97300	106000
6	76700	61400	74700	105000	100000	104000	131000	147000	122000	125000	7350[illegible]	129000
7	69500	75800	91800	84000	83300	88800	133000	113000	153000	124000	108000	151000
8	63100	97600	90200	66600	82300	85200	133000	129000	136000	136000	103000	137000
9	51900	78900	81500	87000	90500	93400	120000	157000	133000	123000	105000	151000
10	69000	63800	81600	116000	88300	91100	129000	152000	146000	122000	114000	141000
11	72400	69900	80600	128000	74000	69600	138000	143000	151000	139000	102000	129000
12	67800	62300	89000	96700	69200	58200	146000	149000	145000	139000	100000	108000
13	63200	49000	73300	97000	108000	90200	153000	135000	131000	141000	65800	125000
14	66800	86000	74600	91800	116000	95600	157000	130000	146000	145000	118000	116000
15	51400	93200	82100	94200	110000	94900	145000	133000	125000	152000	94600	111000
16	46700	93300	87800	93200	120000	96000	135000	143000	123000	150000	95900	105000
17	73100	101000	75000	94700	115000	79100	143000	151000	117000	126000	92400	94200
18	75600	101000	61700	86500	103000	66100	135000	128000	114000	108000	91400	102000
19	77200	88200	83800	88300	69300	55200	137000	137000	126000	134000	87500	92100
20	79900	88300	96900	103000	101000	94800	156000	138000	116000	118000	76000	96800
21	76000	108000	97300	84300	118000	84700	149000	151000	115000	128000	95600	101000
22	63400	107000	95500	85400	119000	94400	124000	153000	111000	122000	88500	99300
23	45400	103000	77100	115000	122000	107000	125000	172000	97400	104000	87500	81300
24	56000	63600	45800	120000	120000	108000	124000	155000	112000	113000	89500	65100
25	63900	69100	46200	125000	103000	104000	134000	157000	108000	117000	88500	89300
26	67600	58900	62400	129000	70500	77300	152000	155000	113000	104000	86900	88000
27	84400	39500	99700	123000	112000	108000	148000	149000	115000	106000	50600	92700
28	77500	72000	93200	107000	116000	117000	126000	147000	120000	121000	97400	102000
29	54200	69400	79100	90500	---	90800	130000	145000	123000	106000	89800	87300
30	40000	94600	78400	134000	---	101000	107000	147000	124000	110000	77400	101000
31	64900	---	71400	139000	---	116000	---	130000	---	126000	98100	---
TOTAL	2025800	2375400	2394700	3136700	2858000	2937300	4024000	4457000	3659000	3693400	2829800	3081900
MEAN	65350	79180	77258	101200	102100	94750	134100	143800	122000	119100	91280	102700
MAX	84400	108000	99700	139000	136000	128000	157000	172000	153000	152000	118000	151000
MIN	40000	39500	45800	66600	65600	55200	107000	113000	77800	67600	50600	58300
AC-FT	4018000	4712000	4750000	6222000	5669000	5826000	7982000	8840000	7258000	7326000	5613000	6113000

CAL YR 1977 TOTAL 30300700 MEAN 83020 MAX 150000 MIN 39500 AC-FT 60100000
WTR YR 1978 TOTAL 37473000 MEAN 102700 MAX 172000 MIN 39500 AC-FT 74330000

WENATCHEE RIVER BASIN

12454000 WHITE RIVER NEAR PLAIN, WA

LOCATION.--Lat 47°52'27", long 120°52'09", in NE¼NE¼ sec.5, T.27 N., R.16 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, on left bank 200 ft (61 m) downstream from Forest Service bridge, 1.2 mi (1.9 km) downstream from Sears Creek, 12.5 mi (20.1 km) northwest of Plain, and at mile 6.4 (10.3 km).

DRAINAGE AREA.--150 mi^2 (388 km^2).

PERIOD OF RECORD.--May 1911 to April 1912, May to September 1912 (monthly discharge only), July to August 1913, October 1913 to March 1914 (monthly discharge only), April to September 1914, August 1954 to current year. Published as "near Chiwaukum" 1911-14. Water temperatures October 1970 to June 1971.

REVISED RECORDS.--WSP 1316: 1914.

GAGE.--Water-stage recorder. Datum of gage is 1,881.92 ft (573.609 m) National Geodetic Vertical Datum of 1929. May 1911 to September 1914, nonrecording gage at same site at different datum.

REMARKS.--Records good except those for periods of missing record, which are fair. No regulation or diversion.

AVERAGE DISCHARGE.--26 years (water years 1912, 1914, 1955-78), 817 ft^3/s (23.14 m^3/s), 73.97 in/yr (1,879 mm/yr), 591,900 acre-ft/yr (730 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,890 ft^3/s (167 m^3/s) June 17, 1974, gage height, 13.56 ft (4.133 m); maximum gage height, 13.87 ft (4.228 m) June 2, 1968; minimum daily discharge, 78 ft^3/s (2.21 m^3/s) Jan. 3-5, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft^3/s (99.1 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 6	unknown	*a unknown		*unknown	

Minimum discharge, 126 ft^3/s (3.57 m^3/s) Oct. 23, gage height, 2.56 ft (0.780 m).

a Maximum daily discharge, 4,200 ft^3/s (119 m^3/s) June 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	200	400	1030	330	180	155	1100	1280	1670	2300	872	581
2	184	1000	2700	320	175	160	950	1380	2200	2220	480	646
3	174	700	2640	340	180	140	860	1320	3060	2210	880	496
4	165	559	1760	340	180	165	800	1190	3400	2140	868	445
5	156	502	1350	330	180	160	760	1090	3760	2140	792	467
6	148	459	1170	312	190	155	700	1060	4200	2360	799	585
7	169	469	996	300	200	170	650	1140	3330	2330	702	439
8	169	409	876	285	190	160	650	1330	3120	2120	680	365
9	178	401	792	279	200	160	650	1560	2930	1570	712	449
10	152	472	748	273	190	165	750	1560	2240	1240	663	800
11	150	535	774	262	180	165	900	1400	1740	1110	568	513
12	152	478	746	250	190	170	856	1280	1700	1190	510	432
13	243	466	734	242	185	170	838	1300	1560	1380	445	384
14	177	446	831	236	183	170	795	1390	1410	1400	410	349
15	163	463	831	231	183	175	774	1350	1420	1590	619	359
16	166	439	766	225	175	180	781	1260	1740	1510	527	324
17	155	401	720	220	180	190	730	1240	2000	1340	413	303
18	148	366	673	212	170	210	709	1360	2020	1270	372	279
19	142	348	632	209	155	240	702	1650	2100	1150	420	256
20	136	300	592	206	155	270	738	2140	2270	1160	352	239
21	132	270	564	209	155	350	720	2520	2270	1220	321	282
22	130	270	537	204	155	480	705	2160	2170	1270	327	439
23	169	280	507	193	160	640	677	1690	1950	1280	300	740
24	199	301	476	188	160	800	687	1460	1740	1180	404	750
25	391	500	445	191	160	900	730	1280	1720	1090	439	760
26	273	1500	428	191	160	1000	980	1180	2080	1230	359	660
27	234	1200	400	183	165	1100	1530	1230	2500	1180	315	629
28	212	950	368	185	185	1200	1500	1440	3090	996	312	524
29	228	1380	388	140	---	1200	1380	1300	2690	904	330	496
30	248	987	368	175	---	1300	1330	1220	2330	838	365	458
31	273	---	340	175	---	1200	---	1350	---	842	436	---
TOTAL	5866	17220	26184	7476	4901	13700	25932	44130	70530	45760	16302	14347
MEAN	189	574	845	241	175	442	864	1424	2351	1476	526	480
MAX	391	1500	2700	340	200	1300	1530	2520	4200	2360	880	800
MIN	130	270	340	175	155	140	650	1060	1410	838	300	239
CFSM	1.26	3.83	5.63	1.61	1.17	2.95	5.76	9.49	15.7	9.84	3.51	3.20
IN.	1.45	4.27	6.49	1.85	1.22	3.40	6.43	10.94	17.49	11.35	4.04	3.57
AC-FT	11640	34160	51940	14830	9720	27170	51440	87530	139900	90760	32340	28540

CAL YR 1977 TOTAL 204935 MEAN 561 MAX 2740 MIN 130 CFSM 3.74 IN 50.82 AC-FT 406500
WTR YR 1978 TOTAL 292388 MEAN 801 MAX 4200 MIN 130 CFSM 5.34 IN 72.51 AC-FT 580000

NOTE.--No gage-height record June 3-6.

12457000 WENATCHEE RIVER AT PLAIN, WA

LOCATION.--Lat 47°45'47", long 120°39'54", in NE¼SW¼ sec.12, T.26 N., R.17 E., Chelan County, Hydrologic Unit 17020011, on left bank 300 ft (91 m) downstream from county road bridge at Plain, 0.3 mi (0.5 km) downstream from Beaver Creek, 2.2 mi (3.5 km) downstream from Chiwawa River, 11.3 mi (18.2 km) north of Leavenworth, and at mile 46.2 (74.3 km).

DRAINAGE AREA.--591 mi^2 (1,531 km^2).

PERIOD OF RECORD.--October 1910 to current year. Published as "near Leavenworth" 1910-31.

REVISED RECORDS.--WSP 482: 1911-14. WSP 1316: 1914(M), 1916(M), 1919(M), 1921-23(M), 1927(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,805 ft (550.2 m), from river-profile map. Prior to Jan. 8, 1932, nonrecording gages at site 0.2 mi (0.3 km) downstream at different datum.

REMARKS.--Records excellent. Wenatchee Park Land and Irrigation Company diverts water from the Chiwawa River, above the station for irrigation of 1,400 acres (5.6 km^2) near Plain. Natural regulation by Wenatchee Lake 8.0 mi (12.9 km) upstream.

AVERAGE DISCHARGE.--68 years, 2,258 ft^3/s (63.95 m^3/s), 51.88 in/yr (1,318 mm/yr), 1,636,000 acre-ft/yr (2,020 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,700 ft^3/s (643 m^3/s) May 29, 1948, gage height, 12.45 ft (3.789 m), from high-water mark in well; minimum, 168 ft^3/s (4.76 m^3/s) Nov. 30, 1952, gage height, 1.31 ft (0.399 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,900 ft^3/s (365 m^3/s) June 6, gage height, 9.09 ft (2.771 m); minimum, 424 ft^3/s (12.0 m^3/s) Oct. 22, 23, gage height, 1.89 ft (0.576 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	592	938	3490	1050	680	752	4330	4830	5190	6860	1800	923
2	564	2700	7370	960	680	746	3920	4920	6380	6230	1780	1230
3	538	2340	10400	1050	700	719	3560	4700	8100	5920	1760	1140
4	520	1930	8580	1100	720	731	3390	4360	9990	5670	1750	1060
5	508	1680	6180	1060	740	722	3208	4080	11700	5410	1700	989
6	495	1490	4830	1050	780	709	2950	4000	12600	5190	1570	1070
7	492	1500	4000	1040	820	731	2730	4310	11800	5380	1480	1090
8	506	1380	3360	1030	840	746	2630	4910	10800	5450	1410	982
9	523	1310	2910	1020	860	740	2550	5390	10000	5190	1380	988
10	520	1310	2670	1000	820	742	2650	5410	8910	4410	1360	1310
11	506	1460	2650	960	800	743	3060	5130	7490	3660	1280	1310
12	495	1440	2770	920	780	745	3130	4870	6640	3180	1170	1170
13	505	1420	2820	900	760	753	3060	5020	6190	2990	1090	1070
14	525	1580	3150	880	740	751	2970	5220	5840	3120	1000	985
15	504	1670	3340	880	725	746	3010	5040	5410	3190	1060	926
16	494	1640	3140	880	696	748	3010	4780	4910	3450	1160	904
17	484	1470	2850	840	687	763	2840	4690	4720	3430	1060	868
18	474	1300	2590	821	689	839	2780	4910	5320	3150	967	842
19	465	1170	2380	812	689	1000	2780	5670	5960	2940	937	798
20	448	1060	2180	797	702	1170	2840	7090	6190	2730	903	767
21	437	915	2030	802	704	1420	2820	8240	6490	2620	865	750
22	429	900	1920	805	707	1780	2760	7850	6810	2620	847	838
23	434	941	1810	775	721	2400	2670	6730	6660	2660	809	1520
24	489	951	1720	750	755	2960	2660	5730	6340	2650	844	1910
25	715	1120	1620	745	760	3330	2800	5000	5750	2480	973	1950
26	792	3920	1520	741	773	3750	3350	4530	5200	2380	921	1710
27	759	4070	1360	729	769	4120	5070	4430	5280	2620	861	1570
28	723	3440	1350	728	778	4370	5240	4830	6040	2480	822	1430
29	716	3980	1340	712	---	4510	5110	4740	7220	2170	799	1300
30	773	3760	1270	699	---	4640	4830	4480	7380	1980	794	1200
31	862	---	1200	700	---	4620	---	4560	---	1860	843	---
TOTAL	17296	54785	98800	27236	20867	53496	98700	160450	217310	113970	35995	34500
MEAN	558	1826	3187	879	745	1726	3290	5176	7244	3676	1161	1150
MAX	862	4070	10400	1100	860	4640	5240	8240	12600	6860	1800	1910
MIN	429	900	1200	699	680	709	2550	4000	4720	1860	794	750
CFSM	.94	3.09	5.39	1.49	1.26	2.92	5.57	8.76	12.3	6.22	1.96	1.95
IN.	1.09	3.45	6.22	1.71	1.31	3.37	6.21	10.10	13.68	7.17	2.27	2.17
AC-FT	34310	108700	196000	54020	41390	106100	195800	318300	431000	226100	71400	68430

CAL YR 1977 TOTAL 581968 MEAN 1594 MAX 10400 MIN 429 CFSM 2.70 IN 36.63 AC-FT 1154000
WTR YR 1978 TOTAL 933405 MEAN 2557 MAX 12600 MIN 429 CFSM 4.33 IN 58.75 AC-FT 1851000

12457800 WENATCHEE RIVER NEAR LEAVENWORTH, WA

LOCATION.--Lat 47°40'25", long 120°34'00", T.25 N., R.17 E. (unsurveyed), Chelan County, Hydrologic Unit 17020011, at U.S. Highway 2 bridge 0.4 mi (0.6 km) upstream from Hatchery Creek, 6 mi (9.7 km) northwest of Leavenworth, and at mile 35.6 (57.3 km).

DRAINAGE AREA.--672 mi^2 (1,740 km^2).

PERIOD OF RECORD.--Water years 1959-70, 1977 to current year.

REMARKS.--Water discharge from rating; discharge value is good.

COOPERATION.--Temperature dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
OCT , 1977							
25...	0845	842	45	6.5	7.2	15	1
NOV							
15...	0905	2170	35	7.0	3.8	85	7
DEC							
13...	0845	3370	36	7.2	2.6	15	2
JAN , 1978							
10...	0845	1420	45	7.2	1.3	10	3
FEB							
21...	0930	876	50	7.5	2.5	45	1
MAR							
14...	0915	926	54	7.2	2.4	15	3
APR							
11...	0918	3690	45	8.0	5.2	30	4
MAY							
09...	0910	9050	38	7.3	7.4	--	1
JUN							
06...	0915	13800	25	6.9	7.5	--	11
JUL							
11...	0920	4340	30	7.2	11.0	15	1
AUG							
22...	0850	1070	42	7.7	13.6	10	3
SEP							
12...	0905	1520	35	7.2	11.3	10	1

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977						
25...	11.7	.00	.03	.01	.00	.00
NOV						
15...	12.4	.05	.03	.01	.00	.00
DEC						
13...	12.5	.08	.02	.01	.00	.00
JAN , 1978						
10...	13.6	.08	.02	.01	.00	.00
FEB						
21...	13.4	.03	.04	.01	.00	.00
MAR						
14...	--	.04	.03	.00	.01	.03
APR						
11...	12.3	.03	.02	.01	.00	.00
MAY						
09...	10.8	.11	.06	.02	.00	.00
JUN						
06...	11.0	.08	.04	.06	.00	.00
JUL						
11...	13.6	.05	.08	.01	.00	.00
AUG						
22...	9.2	.01	.03	.01	.00	.00
SEP						
12...	9.7	.00	.01	.01	.00	.00

12459000 WENATCHEE RIVER AT PESHASTIN, WA

LOCATION.--Lat 47°35'00", long 120°36'46", in SE¼SW¼ sec.8, T.24 N., R.18 E., Chelan County, Hydrologic Unit 17020011, on right bank, 1.0 mi (1.6 km) northwest of Peshastin, 3.5 mi (5.6 km) upstream from Peshastin Creek, 4.1 mi (6.6 km) downstream from Icicle Creek, and at mile 21.5 (34.6 km).

DRAINAGE AREA.--1,000 mi^2 (2,600 km^2), approximately.

PERIOD OF RECORD.--October 1928 to February 1929 (monthly discharge only), March 1929 to current year.

REVISED RECORDS.--WSP 1316: 1929-32(M).

GAGE.--Water-stage recorder. Datum of gage is 1,028.04 ft (313.347 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 24, 1932, nonrecording gage at site 1.2 mi (1.9 km) downstream at different datum.

REMARKS.--Records excellent. Numerous diversions upstream for irrigation of an estimated 3,200 acres (13 km^2) upstream from station. Diversion from Icicle Creek 5.7 mi (9.2 km) upstream from mouth is used for irrigation of a substantial part of the 2,000 acres (89 km^2) irrigated downstream from station.

AVERAGE DISCHARGE.--50 years, 3,132 ft^3/s (88.70 m^3/s), 2,269,000 acre-ft/yr (2,800 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,300 ft^3/s (915 m^3/s) May 28, 1948, gage height, 15.88 ft (4.840 m); minimum, 183 ft^3/s (5.18 m^3/s) Oct. 14, 1939; minimum gage height, 1.24 ft (0.378 m) Nov. 1, 1952; minimum daily discharge, 270 ft^3/s (7.65 m^3/s) Oct. 2, 1929, Nov. 30, 1936, Dec. 1, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,700 ft^3/s (501 m^3/s) June 6, gage height, 11.06 ft (3.371 m); minimum, 574 ft^3/s (16.3 m^3/s) Oct. 22, 23, gage height, 1.93 ft (0.588 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	847	1150	4870	1600	1020	1170	6220	6360	7020	9090	2260	1160
2	809	3260	12000	1500	1020	1150	5630	6470	8620	8270	2210	1430
3	773	3160	14100	1400	1040	1090	5100	6530	10900	7900	2200	1450
4	741	2570	11300	1600	1080	1130	4790	6140	13700	7530	2160	1360
5	713	2210	8390	1600	1080	1110	4530	5630	16100	7260	2130	1280
6	695	1950	6780	1550	1150	1080	4180	5280	17200	7120	1960	1330
7	679	1870	5680	1550	1240	1140	3900	5280	15900	7230	1840	1450
8	700	1820	4770	1550	1270	1150	3740	5800	14600	7260	1750	1300
9	706	1700	4130	1530	1290	1140	3630	6750	13600	6980	1710	1320
10	714	1660	3810	1520	1260	1150	3760	7300	11900	6050	1690	2000
11	686	1880	4200	1460	1210	1170	4200	7160	9960	5800	1620	1960
12	670	1860	4230	1400	1180	1180	4250	6690	8910	4310	1500	1700
13	684	1810	4270	1360	1150	1200	4200	6420	8620	4040	1390	1510
14	696	1960	5120	1330	1130	1210	4080	6810	7950	4170	1280	1380
15	676	2210	5280	1320	1120	1210	4030	6920	7420	4210	1280	1270
16	666	2140	4780	1310	1080	1280	4090	6550	6800	4660	1450	1230
17	650	1940	4280	1260	1060	1240	3920	6240	6660	4670	1370	1180
18	635	1730	3850	1230	1050	1370	3770	6280	7420	4210	1240	1150
19	630	1580	3490	1210	1050	1660	3690	6880	8250	3870	1160	1080
20	606	1400	3180	1190	1070	1920	3750	8530	8550	3580	1150	1020
21	589	1190	2990	1190	1080	2220	3740	10600	8960	3420	1080	983
22	579	1140	2810	1190	1080	2720	3640	10900	9200	3420	1040	1040
23	577	1260	2630	1160	1100	3550	3520	9410	8960	3460	1010	1800
24	632	1250	2460	1130	1140	4450	3450	8110	8480	3440	1050	2480
25	810	1420	2310	1070	1170	4740	3510	7060	7750	3230	1290	2370
26	1060	5410	2160	1090	1190	5340	3970	6380	7130	3070	1230	2160
27	996	5770	2020	1080	1190	5830	5670	6030	7230	3400	1130	1970
28	929	4660	1890	1070	1190	6160	6960	6570	8120	3140	1040	1820
29	907	5490	1940	1050	---	6440	6900	6570	9540	2800	992	1670
30	948	5330	1930	1030	---	6590	6730	6160	9740	2540	970	1590
31	1100	---	1810	1020	---	6590	---	6240	---	2360	1040	---
TOTAL	23083	72780	143460	40750	31690	79300	133550	214050	294990	151690	45222	45443
MEAN	745	2426	4628	1315	1132	2558	4452	6905	9833	4893	1459	1515
MAX	1100	5770	14100	1600	1290	6590	6960	10900	17200	9090	2260	2480
MIN	577	1140	1810	1020	1020	1080	3450	5280	6660	2360	970	983
AC-FT	45790	144400	284600	80830	62860	157300	264900	424600	585100	300900	89700	90140

CAL YR 1977 TOTAL 783720 MEAN 2147 MAX 14100 MIN 577 AC-FT 1555000
WTR YR 1978 TOTAL 1276008 MEAN 3496 MAX 17200 MIN 577 AC-FT 2531000

12462500 WENATCHEE RIVER AT MONITOR, WA

LOCATION.--Lat 47°29'58", long 120°25'24", in NE¼SW¼ sec.11, T.23 N., R.19 E., Chelan County, Hydrologic Unit 17020011, on right bank 1.0 mi (1.6 km) north of Monitor, 3.5 mi (5.6 km) downstream from Mission Creek, and at mile 7.0 (11.3 km).

DRAINAGE AREA.--1,301 mi^2 (3,370 km^2).

PERIOD OF RECORD.-August to November 1897, October 1962 to current year. Published as "near Wenatchee" 1897.

GAGE.--Water-stage recorder. Altitude of gage is 680 ft (207 m), from topographic map. Aug. 7 to Nov. 7, 1897, nonrecording gage 1 mi (1.6 km) downstream at different datum.

REMARKS.--Records excellent. No regulation. Diversions for irrigation of about 25,000 acres (100 km^2) above station.

AVERAGE DISCHARGE.--16 years, 3,446 ft^3/s (97.59 m^3/s), 2,497,000 acre-ft/yr (3,080 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,200 ft^3/s (827 m^3/s) Dec. 4, 1975, gage height, 27.14 ft (8.272 m); minimum, 362 ft^3/s (10.3 m^3/s) Sept. 4, 5, 6, 1973, gage height, 16.98 ft (5.176 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,200 ft^3/s (544 m^3/s) June 6, gage height, 24.85 ft (7.574 m); minimum, 618 ft^3/s (17.5 m^3/s) Oct. 22, 23, gage height, 17.32 ft (5.279 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	840	1200	5390	1770	1210	1400	7300	7200	7470	9680	2320	1130
2	796	3280	14000	1630	1210	1370	6700	7260	9130	6790	2260	1400
3	754	3380	15800	1820	1220	1310	6070	7360	11500	8420	2210	1500
4	720	2740	12700	1850	1250	1340	5580	6970	14400	7990	2190	1410
5	688	2360	9440	1830	1260	1320	5290	6390	17200	7680	2150	1330
6	666	2080	7560	1790	1350	1290	4910	5950	18600	7500	1980	1380
7	689	1970	6340	1770	1470	1350	4550	5870	17200	7580	1840	1530
8	745	1950	5330	1750	1540	1370	4310	6370	15800	7590	1730	1410
9	753	1800	4610	1720	1560	1360	4150	7380	14600	7340	1660	1410
10	769	1750	4240	1690	1540	1390	4300	8140	12800	6400	1650	2200
11	742	1980	4730	1630	1480	1420	4780	8050	10800	5300	1580	2190
12	726	1980	4850	1570	1440	1450	4870	7510	9600	4570	1470	1880
13	716	1930	5160	1530	1390	1490	4790	7090	9050	4220	1360	1640
14	742	2040	6450	1500	1360	1500	4650	7480	8540	4320	1250	1520
15	730	2360	6380	1500	1350	1500	4580	7680	7950	4380	1210	1400
16	716	2290	5650	1500	1300	1520	4660	7230	7280	4810	1380	1360
17	701	2100	5010	1450	1270	1570	4470	6860	7120	4910	1350	1300
18	685	1860	4490	1400	1260	1770	4270	6860	7860	4440	1220	1240
19	671	1700	4060	1380	1250	2170	4190	7500	8770	4060	1140	1200
20	650	1530	3700	1360	1260	2530	4240	9270	9070	3750	1120	1130
21	634	1290	3460	1360	1270	2870	4240	11400	9520	3550	1070	1090
22	624	1210	3240	1370	1280	3380	4170	11800	9770	3510	1030	1120
23	618	1360	3030	1330	1300	4300	4040	10200	9540	3550	995	1790
24	662	1350	2830	1300	1350	5510	3930	8790	9030	3540	1010	2660
25	801	1500	2660	1280	1390	5640	3970	7640	8250	3330	1290	2570
26	1090	5670	2470	1270	1420	6150	4410	6800	7600	3160	1270	2350
27	1040	6370	2300	1260	1420	6680	6160	6400	7610	3530	1150	2140
28	979	5120	2150	1250	1420	7020	7910	6980	8510	3300	1050	1980
29	971	5980	2220	1230	---	7370	7890	7030	10000	2940	982	1810
30	998	5980	2190	1210	---	7560	7660	6570	10300	2670	944	1700
31	1130	---	2040	1200	---	7630	---	6630	---	2460	1010	---
TOTAL	24046	78110	164480	46500	37820	94530	153040	234680	314870	159270	44871	48830
MEAN	776	2604	5306	1500	1351	3049	5101	7570	10500	5138	1447	1628
MAX	1130	6370	15800	1850	1560	7630	7910	11800	18600	9680	2320	2660
MIN	618	1200	2040	1200	1210	1290	3930	5870	7120	2460	944	1090
AC-FT	47700	154900	326200	92230	75020	187500	303600	465500	624500	315900	89000	96850

CAL YR 1977 TOTAL 809297 MEAN 2217 MAX 15800 MIN 514 AC-FT 1605000
WTR YR 1978 TOTAL 1401047 MEAN 3838 MAX 18600 MIN 618 AC-FT 2779000

12462520 WENATCHEE RIVER AT WENATCHEE, WA

LOCATION.--Lat 47°27'32", long 120°20'07", in SE¼NW¼ sec.28, T.23 N., R.20 E., Chelan County, Hydrologic Unit 17020011, at bridge on U.S. Highway 2, 1.3 mi (2.1 km) north of Wenatchee, and at mile 1.1 (1.8 km).

DRAINAGE AREA.--1,327 mi^2 (3,437 km^2).

PERIOD OF RECORD.--Water years, 1960-63, 1964-66 (partial-record station), 1967-70, 1972, 1975 to current year.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT , 1977												
25...	0745	717	68	6.9	7.3	15	1	11.6	36	2	7.6	4.1
NOV												
15...	0810	2420	55	7.1	5.1	5	22	12.7	21	0	4.6	2.3
DEC												
13...	0715	4870	60	7.3	3.5	20	3	13.0	24	3	5.3	2.6
JAN , 1978												
10...	0755	1700	76	6.9	1.5	10	2	14.2	31	2	6.9	3.3
FEB												
21...	0830	1270	110	7.1	3.5	40	2	13.5	43	2	9.3	4.8
MAR												
14...	0810	1500	111	7.3	3.8	15	1	--	44	0	8.8	5.4
APR												
11...	0810	4760	83	8.1	6.9	35	2	12.3	30	0	6.6	3.3
MAY												
09...	0815	7290	55	7.3	8.8	15	1	10.7	18	0	3.0	2.6
JUN												
06...	0810	19000	35	7.0	9.9	20	15	10.6	13	2	3.5	1.1
JUL												
11...	0820	5460	40	7.4	13.2	10	1	13.0	15	2	3.4	1.6
AUG												
22...	0740	1050	80	7.5	14.9	10	3	9.1	31	0	7.0	3.4
SEP												
12...	0800	1920	60	7.0	11.8	15	2	9.9	23	1	5.0	2.6

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT , 1977												
25...	2.5	13	.2	1.3	41	0	34	8.3	5.0	1.3	.14	.03
NOV												
15...	1.4	12	.1	.9	27	0	22	3.4	4.8	1.2	.06	.02
DEC												
13...	1.4	13	.2	1.1	25	0	21	2.0	3.4	1.7	.10	.03
JAN , 1978												
10...	1.8	11	.1	1.0	35	0	29	7.0	5.9	1.0	.17	.02
FEB												
21...	2.9	12	.2	1.3	50	0	41	6.4	3.4	1.2	.14	.04
MAR												
14...	2.8	12	.2	1.2	59	0	48	4.7	4.2	1.6	.14	.04
APR												
11...	1.5	9	.1	1.0	39	0	32	.5	3.0	1.1	.05	.03
MAY												
09...	1.6	15	.2	1.0	25	0	21	2.0	3.0	1.0	.09	.04
JUN												
06...	1.0	13	.1	.8	14	0	11	2.2	3.3	.4	.09	.05
JUL												
11...	1.2	14	.1	.8	16	0	13	1.0	2.5	.8	.06	.02
AUG												
22...	2.4	14	.2	1.1	38	0	31	1.9	6.0	.9	.10	.03
SEP												
12...	1.8	14	.2	.9	27	0	22	4.3	4.0	.7	.07	.02

12462520 WENATCHEE RIVER AT WENATCHEE, WA--Continued

WATER QUALITY DATA

DATE	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ARSENIC DIS-SOLVED (UG/L AS AS)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	LEAD, DIS-SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT , 1977												
25...	.01	.00	.00	1	2	0	0	12	.0	0	0	0
NOV												
15...	.01	.00	.00	1	1	0	0	8	.0	0	0	10
DEC												
13...	.02	.00	.00	1	1	10	1	8	.1	0	0	10
JAN , 1978												
10...	.01	.01	.03	1	0	0	1	4	.0	0	0	0
FEB												
21...	.02	.00	.00	0	0	0	0	2	.0	3	1	0
MAR												
14...	.02	.00	.00	1	0	0	2	5	.0	0	0	10
APR												
11...	.01	.00	.00	0	0	0	0	2	.0	0	0	0
MAY												
09...	.02	.00	.00	0	1	0	0	6	.0	0	0	0
JUN												
06...	.04	.01	.03	1	0	0	0	5	.0	0	0	5
JUL												
11...	.01	.00	.00	1	0	0	2	1	.0	0	0	5
AUG												
22...	.01	.00	.00	0	0	0	1	5	.0	0	0	10
SEP												
12...	.04	.00	.00	0	0	0	1	0	.0	0	0	0

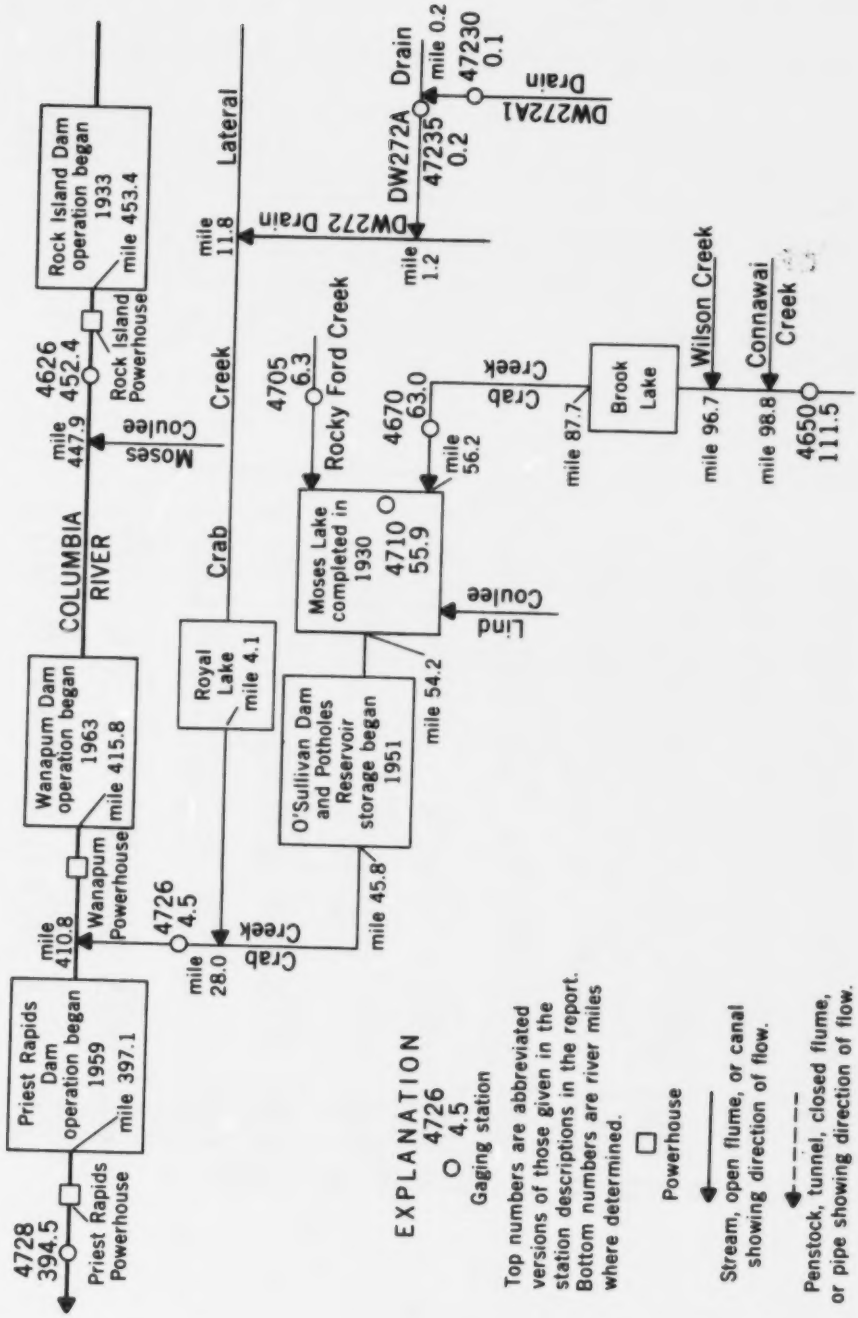

Figure 13. Gaging stations in Columbia River basin from Rock Island Dam to Priest Rapids gage.

12462600 COLUMBIA RIVER BELOW ROCK ISLAND DAM, WA

LOCATION.--Lat 47°19'57", long 120°04'48", in NE¼NW¼ sec.9, T.21 N., R.22 E., Douglas County, Hydrologic Unit 17020010, on left bank 1.0 mi (1.6 km) downstream from Rock Island Dam, 2.0 mi (3.2 km) downstream from Rock Island Creek, 12 mi (19.3 km) southeast of Wenatchee, and at mile 452.4 (727.9 km).

DRAINAGE AREA.--89,400 mi^2 (231,500 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January to December 1910 (gage heights only), May 1913 to December 1916, October 1930 to current year. Published as "at Wenatchee" January 1910 to December 1916, and as "at Trinidad" October 1930 to May 1961.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 1, 1916, nonrecording gage 1.2 mi (1.9 km) upstream from highway bridge at Wenatchee, at mile 466.3 (750.3 km), at datum 585 ft (177.7 m) National Geodetic Vertical Datum of 1929. Jan. 1 to Dec. 31, 1916, nonrecording gage on pier of highway bridge at Wenatchee, at mile 465.1 (748.3 km), at datum 579.30 ft (176.571 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1930 to May 31, 1961, water-stage recorder 0.5 mi (0.8 km) southwest of Trinidad, at mile 441.7 (710.7 km), at datum 499.3 ft (152.19 m) National Geodetic Vertical Datum of 1929 (river-profile survey). Since May 21, 1963, auxiliary water-stage recorder 2.0 mi (3.2 km) downstream at same datum.

REMARKS.--Water-discharge records fair. Flow regulated by nine major reservoirs and numerous small reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (se sta 12435500) and for irrigation of about 380,000 acres (1,540 km^2) in the United States and an additional 35,000 acres (142 km^2) in Canada.

AVERAGE DISCHARGE.--51 years (water years 1914-16, 1931-78), 121,800 ft^3/s (3,449 m^3/s) 88,240,000 acre-ft/yr (109,000 hm^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,000 ft^3/s (19,600 m^3/s) June 12, 1948, gage height, 59.55 ft (18.090 m) site and datum then in use; minimum, 4,120 ft^3/s (117 m^3/s) Feb. 10, 1932, gage height, 11.40 ft (3.475 m), site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft^3/s (21,000 m^3/s), from floodmarks at Wenatchee.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 180,000 ft^3/s (5,100 m^3/s) May 23; minimum daily, 42,700 ft^3/s (1,210 m^3/s) Oct. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64700	81000	84000	76000	139000	117000	133000	135000	140000	91600	104000	85900
2	46000	75700	77500	86400	130000	117000	116000	141000	133000	82100	76300	69500
3	73500	95900	64000	115000	116000	125000	120000	151000	88100	126000	91400	63600
4	72700	87700	67000	94200	104000	114000	133000	153000	95200	75700	96200	78100
5	76000	61200	88200	98900	69000	90100	139000	154000	144000	116000	100000	104000
6	76000	61400	81100	105000	97100	103000	130000	151000	142000	133000	76700	131000
7	70700	80600	98800	88700	88200	88300	126000	120000	148000	126000	104000	153000
8	66200	99200	93600	68300	84800	83800	137000	134000	154000	138000	104000	136000
9	56300	83100	83100	86700	89100	92700	124000	160000	146000	130000	106000	150000
10	67800	65700	84200	114000	90400	92200	132000	163000	153000	124000	116000	148000
11	74200	77200	85400	123000	78400	71300	142000	151000	160000	145000	104000	136000
12	71500	69400	93700	102000	68100	59100	148000	158000	148000	138000	104000	111000
13	63600	50000	80700	105000	110000	86400	154000	141000	137000	145000	78700	130000
14	68000	84400	81300	92900	120000	95800	159000	140000	150000	143000	114000	121000
15	55400	97100	89400	98300	113000	91800	157000	144000	132000	153000	98800	117000
16	46800	97200	92200	101000	123000	97200	140000	152000	126000	152000	96600	105000
17	72600	102000	80800	102000	120000	82300	143000	156000	122000	132000	94000	99400
18	76200	102000	71800	88300	107000	65500	141000	139000	120000	106000	91800	105000
19	82700	95400	81600	88300	85600	54900	137000	145000	132000	141000	85300	91400
20	82900	95600	101000	107000	106000	93400	154000	148000	127000	118000	78200	103000
21	80600	115000	102000	86900	119000	87500	148000	160000	125000	128000	96900	102000
22	67000	109000	101000	82900	120000	94200	127000	166000	114000	126000	93700	107000
23	46400	108000	82000	120000	127000	106000	125000	180000	106000	105000	90200	82600
24	59800	67200	52000	127000	123000	112000	127000	164000	115000	113000	90800	86500
25	68300	78700	49800	134000	112000	110000	137000	162000	112000	118000	91800	90900
26	74100	67400	65900	143000	82000	83100	152000	157000	113000	96200	91700	93500
27	86500	43800	99200	123000	114000	112000	150000	152000	120000	105000	53800	94800
28	80600	82900	93200	114000	112000	124000	132000	152000	124000	127000	93100	105000
29	54400	80500	82200	92600	---	97500	138000	148000	132000	113000	94500	93700
30	42700	99700	78100	141000	---	105000	114000	152000	129000	117000	82000	100000
31	64200	---	73300	144000	---	120000	---	136000	---	128000	96800	---
TOTAL	2088400	2514000	2558100	3249400	2947700	2972100	4115000	4665000	3907300	3791600	2887300	3174100
MEAN	67370	83800	82520	104800	105300	95870	137200	150500	130200	122300	93140	105800
MAX	86500	115000	102000	144000	139000	125000	159000	180000	168000	153000	116000	153000
MIN	42700	43800	49800	68300	68100	54900	114000	120000	88100	75700	53800	63600
AC-FT	4142000	4987000	5074000	6445000	5847000	5895000	8162000	9253000	7750000	7521000	5727000	6296000

CAL YR 1977 TOTAL 30991300 MEAN 84910 MAX 149000 MIN 42700 AC-FT 61470000
WTR YR 1978 TOTAL 38870000 MEAN 106500 MAX 180000 MIN 42700 AC-FT 77100000

12462000 COLUMBIA RIVER BELOW ROCK ISLAND DAM, WA--Continued

WATER QUALITY RECORDS

LOCATION.--Samples taken at site 1.6 mi (2.6 km) downstream from gaging station, 2.6 mi (4.2 km) downstream from Rock Island Dam, 13 mi (21 km) southeast of Wenatchee, and at mi 450.9 (725.5 km).

PERIOD OF RECORD.--Water years 1972, 1975 to current year.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)
OCT , 1977							
24...	1535	--	73900	148	8.6	16.8	15
NOV							
14...	1535	--	82600	158	7.5	11.3	20
DEC							
12...	1525	--	93300	169	7.5	7.2	--
JAN , 1978							
09...	1500	--	104000	181	8.1	4.6	10
FEB							
20...	1545	--	110000	195	7.8	2.5	40
MAR							
13...	1540	--	81800	202	8.3	6.0	10
APR							
10...	1540	--	142000	192	8.4	6.8	30
MAY							
08...	1545	--	138000	170	8.6	11.4	5
JUN							
05...	1555	--	148000	140	8.5	16.3	15
JUL							
10...	1635	120000	--	125	8.3	18.6	15
AUG							
21...	1440	--	157000	148	7.7	19.4	15
SEP							
11...	1545	--	132000	147	8.1	1.9	15

DATE	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977							
24...	2	13.0	.08	.04	.02	.00	.00
NOV							
14...	3	11.6	.11	.03	.07	.08	.00
DEC							
12...	3	11.8	.12	.02	.06	.02	.06
JAN , 1978							
09...	1	13.1	.24	.03	.04	.03	.09
FEB							
20...	3	14.5	.12	.04	.04	.02	.06
MAR							
13...	7	13.8	.22	.03	.07	.00	.00
APR							
10...	5	13.9	.14	.03	.03	.01	.03
MAY							
08...	3	13.2	.21	.10	.04	.00	.00
JUN							
05...	10	11.0	.04	.06	.05	.01	.03
JUL							
10...	1	13.0	.02	.02	.02	.00	.00
AUG							
21...	11	10.1	.05	.04	.02	.01	.03
SEP							
11...	2	9.3	.09	.02	.02	.01	.03

12464670 CLEAR LAKE NEAR MEDICAL LAKE, WA

LOCATION.--Lat 47°32'30", long 117°41'21", in NW¼SW¼ sec.30, T.24 N., R.41 E., Spokane County, Hydrologic Unit 17020013, on north shore 2.2 mi (3.5 km) south of town of Medical Lake.

DRAINAGE AREA.--9.51 mi^2 (24.63 km^2), including that of West Medical Lake.

PERIOD OF RECORD.--September 1958 to current year (fragmentary), chemical analyses April 1973 to October 1975.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is 2,298.6 ft (700.61 m) National Geodetic Vertical Datum of 1929.

REMARKS.--No known regulation. Some pumping for domestic use and irrigation. Gage heights to top of ice Dec. 9, Dec. 23 to Jan. 25, and Jan. 28 to Mar. 10.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 44.50 ft (13.564 m) Apr. 2, 1974; minimum observed, 38.74 ft (11.808 m) Oct. 8, 11, 18, 1968, Oct. 16, 19, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 42.63 ft (12.994 m) May 24; minimum observed, 39.71 ft (12.104 m) Nov. 8.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	39.42	---	---	---	---	---	---	---	---	41.87	---
2	---	---	39.86	---	---	---	---	42.48	42.57	---	---	41.43
3	---	---	---	40.42	40.78	41.46	---	---	---	---	---	---
4	39.88	39.74	---	---	---	---	42.06	---	---	42.31	41.79	---
5	---	---	39.82	---	---	---	---	---	---	---	---	41.45
6	---	---	39.88	40.46	---	---	---	---	42.55	---	---	---
7	39.84	---	---	---	---	41.50	42.12	---	---	42.27	---	---
8	---	39.71	---	---	40.94	---	---	---	---	---	41.73	41.49
9	---	---	39.88	---	---	---	---	---	42.51	---	---	---
10	---	---	---	---	41.08	41.52	---	---	---	---	---	---
11	39.86	39.72	---	40.48	---	---	42.18	---	---	42.21	41.61	---
12	---	---	---	---	---	---	---	---	---	---	---	41.30
13	---	---	40.06	40.48	---	---	---	---	42.47	---	---	---
14	39.80	---	---	---	---	41.60	42.22	---	---	42.17	---	---
15	---	39.74	---	---	41.14	---	---	---	---	---	41.57	41.37
16	---	---	40.22	---	---	---	---	---	42.43	---	---	---
17	39.78	---	---	40.54	41.14	41.66	---	---	---	---	---	---
18	39.80	39.74	---	---	---	---	42.26	---	---	42.11	41.55	41.32
19	---	---	---	---	---	---	---	---	---	---	---	41.33
20	---	---	40.26	40.58	---	---	---	---	42.37	42.09	---	---
21	39.78	---	---	---	41.24	41.72	42.30	---	---	42.07	---	---
22	---	---	---	---	---	---	---	---	---	---	41.51	41.31
23	---	---	40.28	---	---	---	---	42.60	---	---	---	---
24	---	---	---	40.66	41.40	41.82	---	42.63	42.35	---	41.51	---
25	39.76	---	---	---	---	---	---	---	---	42.01	---	---
26	---	39.78	---	40.66	---	---	42.38	---	---	---	---	41.29
27	---	---	40.24	40.66	---	---	---	---	42.29	---	---	---
28	39.74	---	---	---	41.40	41.83	42.40	---	---	41.95	---	---
29	---	39.78	---	---	---	---	---	---	---	---	---	41.27
30	---	---	40.30	---	---	---	---	42.61	42.27	---	---	---
31	---	---	---	40.74	---	41.88	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

12465000 CRAB CREEK AT IRBY, WA

LOCATION.--Lat 47°21'38", long 118°50'56", in NW¼NW¼ sec.31, T.22 N., R.32 E., Lincoln County, Hydrologic Unit 17020013, on right bank 8 ft (2.4 m) upstream from highway bridge at Irby, 5.4 mi (8.7 km) downstream from Lake Creek, 7.5 mi (12.1 km) west of Odessa, and at mile 111.5 (179.4 km).

DRAINAGE AREA.--1,042 mi² (2,699 km²).

PERIOD OF RECORD.--September 1942 to current year. Chemical analyses October 1961 to September 1962.

REVISED RECORDS.--WSP 1446: 1949-51. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,386.30 ft (422.544 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Pumpage from ground-water wells for irrigation has been on the increase above the station since 1964. No regulation.

AVERAGE DISCHARGE.--36 years, 76.1 ft³/s (2.155 m³/s), 55,130 acre-ft/yr (68.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,370 ft³/s (237 m³/s) Feb. 27, 1957, gage height, 11.94 ft (3.639 m); no flow Jan. 3, 8, 9, 15-22, 1969, Oct. 11-23, Oct. 31 to Nov. 2, 1977 and part of each day Aug. 23, 24, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s (8.5 m³/s) and maximum(*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 8	0400	*1,390	39.4	*5.64	1.719

Minimum discharge, no flow Oct. 11-23, Oct. 31 to Nov. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	.00	.65	.10	76	155	73	36	28	33	18	12
2	1.4	.00	.82	.01	72	147	74	38	29	33	18	11
3	1.3	.02	.73	.16	69	103	74	39	29	32	18	11
4	1.2	.65	.58	.25	157	130	86	39	29	67	18	9.9
5	1.0	.91	.65	.35	388	127	85	38	29	40	18	9.9
6	1.0	.91	.58	.40	630	124	88	36	29	25	18	9.9
7	.91	.65	.51	.51	790	121	86	35	29	24	16	9.9
8	.65	.73	.39	.73	1100	117	84	34	31	23	16	9.9
9	.20	.42	.45	1.2	1030	122	82	34	32	22	16	9.9
10	.02	.82	.51	26	708	141	80	31	33	21	16	9.4
11	.00	.73	.58	14	531	148	71	29	32	20	16	9.4
12	.00	.91	.73	8.1	398	147	71	28	33	19	16	9.4
13	.00	.82	1.0	2.8	358	139	70	28	34	19	16	8.8
14	.00	.73	22	3.3	251	132	77	29	34	19	16	8.8
15	.00	.82	13	2.8	222	130	70	27	34	20	15	8.3
16	.00	.91	6.8	46	200	122	54	25	36	20	15	8.8
17	.00	.91	2.8	106	182	113	60	25	35	20	15	9.4
18	.00	.82	1.7	175	167	105	66	25	35	20	15	9.4
19	.00	.65	.91	211	156	98	66	25	35	20	15	8.3
20	.00	.45	.82	211	148	94	63	25	35	20	14	8.3
21	.00	.33	.65	186	141	89	49	25	34	20	14	8.3
22	.00	.30	.68	275	148	85	38	25	35	20	14	8.8
23	.00	.50	.50	224	163	83	42	25	34	20	14	8.8
24	.01	.00	.45	285	171	79	41	25	35	20	13	8.8
25	.51	.00	.40	175	177	79	37	26	34	20	13	8.8
26	.38	.91	.35	145	176	76	34	26	33	20	13	8.3
27	.91	.91	.30	122	167	77	35	28	33	20	12	8.3
28	1.0	.82	.20	105	159	77	35	27	33	19	11	8.3
29	.73	.82	.20	96	---	76	35	27	32	18	11	8.3
30	.06	.65	.20	86	---	71	36	26	33	19	12	7.7
31	.00	---	.20	80	---	71	---	27	---	18	12	---
TOTAL	17.88	19.90	60.06	2502.35	8885	3380	1877	913	977	731	464	276.1
MEAN	.42	.66	1.94	80.7	317	109	62.6	29.5	32.6	23.6	15.0	9.20
MAX	1.4	.91	22	275	1100	155	88	39	36	67	18	12
MIN	.00	.00	.20	.01	69	71	34	25	28	18	11	7.7
AC-FT	26	39	119	4960	17620	6700	3720	1810	1940	1450	920	548

CAL YR 1977 TOTAL 2467.40 MEAN 6.76 MAX 22 MIN .00 AC-FT 4900
WTR YR 1978 TOTAL 20098.29 MEAN 55.1 MAX 1100 MIN .00 AC-FT 39860

12467000 CRAB CREEK NEAR MOSES LAKE, WA

LOCATION.--Lat 47°11'22", long 119°15'53", in NW¼NE¼ sec.35, T.20 N., R.28 E., Grant County, Hydrologic Unit 17020015, on left bank at downstream side of highway bridge, 5 mi (4.8 km) upstream from Parker Horn, 4 mi (6.4 km) north of town of Moses Lake, and at mile 63.0 (101.4 km).

DRAINAGE AREA.--2,228 mi^2 (5,771 km^2), of which 219 mi^2 (567 km^2) in the vicinity of Long Lake Reservoir is noncontributing.

PERIOD OF RECORD.--September 1942 to current year, chemical analyses October 1961 to September 1962.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,070.39 ft (326.255 m) Bureau of Reclamation datum. Prior to July 14, 1956, at site 300 ft (91 m) upstream at same datum.

REMARKS.--Records excellent. Numerous small diversions for irrigation and domestic use above station. Most of natural flow from upper basin passes this station underground. No known regulation. Since 1952, return flow from irrigation on Columbia Basin project has increased runoff during summer months.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,400 ft^3/s (295 m^3/s), Feb. 28, 1957, gage height, 6.81 ft (2.076 m); no flow for several months each year prior to 1952, and part of each day Jan. 14, 15, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 579 ft^3/s (16.4 m^3/s) Feb. 13, gage height, 4.11 ft (1.253 m); minimum, 15 ft^3/s (0.42 m^3/s) Dec. 24, gage height, 1.82 ft (0.555 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	60	38	17	34	134	76	49	39	64	69	88
2	90	56	38	17	34	128	75	47	40	74	69	86
3	88	54	38	17	35	126	74	46	40	66	68	84
4	86	53	33	18	37	126	74	44	37	67	68	84
5	86	56	31	18	40	124	73	44	38	72	68	84
6	84	53	32	19	45	121	69	42	38	73	69	86
7	81	52	32	20	45	121	67	39	40	73	72	87
8	79	49	28	22	45	121	66	37	42	74	73	87
9	79	48	26	28	43	116	64	37	42	74	73	87
10	79	47	27	29	38	110	64	37	44	74	72	84
11	88	47	28	25	37	116	64	37	45	74	73	83
12	81	46	30	28	350	128	60	35	47	74	75	83
13	81	46	49	48	570	134	60	37	49	74	75	83
14	80	44	49	48	530	130	61	44	49	74	76	81
15	78	45	40	56	483	124	66	44	52	73	79	80
16	78	44	34	57	414	122	76	40	52	73	79	78
17	75	42	35	56	366	119	76	38	53	75	79	78
18	76	40	32	49	330	118	73	37	52	74	88	76
19	75	36	30	48	302	113	72	37	53	73	81	75
20	73	34	28	46	270	110	69	37	52	73	83	76
21	72	34	26	45	230	107	69	37	51	72	81	76
22	70	34	26	42	202	102	67	37	52	72	87	78
23	70	34	26	39	178	104	67	37	53	72	86	75
24	68	35	22	38	159	104	64	38	58	70	86	75
25	67	38	21	37	152	98	61	38	58	72	100	74
26	65	43	20	36	148	95	60	37	57	73	88	72
27	64	41	19	35	145	93	60	38	55	75	86	72
28	65	39	18	35	139	93	59	38	55	73	86	70
29	67	42	18	36	---	90	55	37	58	73	86	76
30	64	37	18	34	---	86	51	40	59	72	84	75
31	59	---	17	34	---	81	---	39	---	69	87	---
TOTAL	2361	1329	989	1069	5401	3494	1992	1224	1460	2241	2438	2393
MEAN	76.2	44.3	29.3	34.5	193	113	66.4	39.5	48.7	72.3	78.6	79.8
MAX	93	60	49	57	570	134	76	49	59	75	100	88
MIN	59	34	17	17	34	81	51	35	37	64	68	70
AC-FT	4680	2640	1800	2120	10710	6930	3950	2430	2900	4450	4840	4750

CAL YR 1977 TOTAL 16383.3 MEAN 44.9 MAX 108 MIN 9.2 AC-FT 32500
WTR YR 1978 TOTAL 26311.9 MEAN 72.1 MAX 570 MIN 17 AC-FT 52190

12469500 LENORE LAKE NEAR SOAP LAKE, WA

LOCATION.--Lat 47°30'52", long 119°30'00", in SE¼SW¼ sec.1, T.23 N., R.26 E., Grant County, Hydrologic Unit 17020014, on east shore 200 ft (61 m) downlake from outlet gate on Alkali Lake and 8.8 mi (14.2 km) north of town of Soap Lake.

DRAINAGE AREA.--367 mi² (951 km²), of which 281 mi² (728 km²) in the vicinity of Banks Lake is noncontributing.

PERIOD OF RECORD.--July 1936, March 1938 to December 1956 (fragmentary), January 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Bureau of Reclamation bench mark). Prior to Dec. 20, 1956, nonrecording gages 800 ft (244 m) uplake at same datum.

REMARKS.--Records excellent. Some diversion from tributaries for irrigation, and pumping into and out of lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,087.75 ft (331.546 m) June 12, 1955; minimum, 1,072.72 ft (326.905 m) Jan. 2, 1959 (affected by wind).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 1,092.2 ft (332.90 m), from well-defined alkali line at gage, date unknown.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,080.49 ft (329.333 m) Mar. 7; minimum, 1,077.20 ft (328.351 m) Oct. 15-17.

ELEVATION, IN FEET ABOVE NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1077.59	1077.43	1077.72	1078.49	1079.36	1080.29	1080.17	1079.87	1079.02	1078.51	1078.37	1078.21
2	1077.55	1077.41	1077.76	1078.50	1079.38	1080.31	1080.16	1079.84	1079.00	1078.50	1078.37	1078.21
3	1077.50	1077.40	1077.78	1078.54	1079.43	1080.34	1080.13	1079.80	1078.97	1078.47	1078.36	1078.20
4	1077.47	1077.40	1077.78	1078.57	1079.45	1080.35	1080.13	1079.78	1078.95	1078.57	1078.36	1078.19
5	1077.43	1077.42	1077.80	1078.59	1079.47	1080.38	1080.11	1079.75	1078.91	1078.58	1078.33	1078.19
6	1077.40	1077.43	1077.85	1078.61	1079.52	1080.37	1080.09	1079.72	1078.90	1078.58	1078.30	1078.17
7	1077.35	1077.42	1077.85	1078.64	1079.56	1080.45	1080.08	1079.78	1078.86	1078.58	1078.27	1078.16
8	1077.33	1077.43	1077.84	1078.68	1079.63	1080.45	1080.06	1079.69	1078.89	1078.59	1078.27	1078.14
9	1077.28	1077.44	1077.86	1078.72	1079.69	1080.44	1080.05	1079.67	1078.88	1078.56	1078.27	1078.14
10	1077.27	1077.45	1077.88	1078.74	1079.73	1080.42	1080.03	1079.63	1078.85	1078.54	1078.25	1078.14
11	1077.27	1077.46	1077.90	1078.77	1079.76	1080.36	1080.03	1079.60	1078.85	1078.52	1078.22	1078.17
12	1077.27	1077.47	1077.92	1078.79	1079.79	1080.39	1080.01	1079.56	1078.85	1078.50	1078.21	1078.16
13	1077.29	1077.49	1077.99	1078.81	1079.82	1080.37	1080.00	1079.54	1078.85	1078.51	1078.16	1078.15
14	1077.29	1077.49	1078.05	1078.85	1079.86	1080.35	1079.99	1079.54	1078.84	1078.50	1078.17	1078.16
15	1077.29	1077.52	1078.11	1078.88	1079.90	1080.34	1079.99	1079.54	1078.83	1078.49	1078.18	1078.17
16	1077.29	1077.52	1078.12	1078.93	1079.93	1080.32	1080.05	1079.49	1078.83	1078.49	1078.16	1078.15
17	1077.30	1077.53	1078.16	1078.98	1079.95	1080.31	1080.08	1079.47	1078.83	1078.49	1078.15	1078.16
18	1077.32	1077.52	1078.20	1079.08	1079.99	1080.29	1080.08	1079.44	1078.81	1078.47	1078.13	1078.15
19	1077.33	1077.53	1078.22	1079.04	1080.02	1080.28	1080.07	1079.43	1078.82	1078.47	1078.12	1078.15
20	1077.32	1077.54	1078.23	1079.06	1080.05	1080.26	1080.06	1079.42	1078.81	1078.46	1078.11	1078.15
21	1077.33	1077.54	1078.26	1079.09	1080.07	1080.25	1080.04	1079.39	1078.78	1078.46	1078.11	1078.15
22	1077.33	1077.55	1078.28	1079.12	1080.09	1080.24	1080.02	1079.35	1078.74	1078.46	1078.12	1078.16
23	1077.34	1077.57	1078.29	1079.13	1080.14	1080.25	1080.01	1079.31	1078.71	1078.45	1078.16	1078.16
24	1077.35	1077.59	1078.32	1079.16	1080.16	1080.25	1079.98	1079.28	1078.67	1078.44	1078.17	1078.17
25	1077.35	1077.61	1078.33	1079.18	1080.17	1080.24	1079.96	1079.26	1078.64	1078.43	1078.19	1078.16
26	1077.35	1077.63	1078.35	1079.20	1080.22	1080.23	1079.95	1079.23	1078.60	1078.42	1078.19	1078.18
27	1077.35	1077.65	1078.37	1079.23	1080.25	1080.22	1079.94	1079.19	1078.57	1078.44	1078.16	1078.17
28	1077.35	1077.66	1078.38	1079.25	1080.28	1080.21	1079.93	1079.16	1078.54	1078.44	1078.15	1078.17
29	1077.36	1077.67	1078.42	1079.28	---	1080.21	1079.91	1079.11	1078.53	1078.43	1078.15	1078.17
30	1077.40	1077.70	1078.45	1079.29	---	1080.17	1079.89	1079.07	1078.51	1078.42	1078.18	1078.17
31	1077.38	---	1078.46	1079.33	---	1080.17	---	1079.04	---	1078.40	1078.21	---
MEAN	1077.36	1077.52	1078.09	1078.92	1079.85	1080.31	1080.03	1079.48	1078.80	1078.49	1078.21	1078.17
MAX	1077.59	1077.70	1078.46	1079.33	1080.28	1080.45	1080.17	1079.87	1079.02	1078.58	1078.37	1078.21
MIN	1077.27	1077.40	1077.72	1078.49	1079.36	1080.17	1079.89	1079.04	1078.51	1078.40	1078.11	1078.14

CAL YR 1977 MEAN 1078.72 MAX 1080.23 MIN 1077.27
WTR YR 1978 MEAN 1078.76 MAX 1080.45 MIN 1077.27

CRAB CREEK BASIN

12470000 SOAP LAKE NEAR SOAP LAKE, WA

LOCATION.--Lat 47°24'11", long 119°29'11", in NW¼SW¼ sec.18, T.22 N., R.27 E., Grant County, Hydrologic Unit 17020014, on east shore 0.9 mi (1.4 km) north of town of Soap Lake.

DRAINAGE AREA.--413 mi² (1,070 km²), of which 281 mi² (728 km²) in the vicinity of Banks Lake is noncontributing.

PERIOD OF RECORD.-May to August 1936, March 1938 to February 1957 (fragmentary), March 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Bureau of Reclamation bench mark). Prior to Feb. 4, 1953, nonrecording gage at site 0.2 mi (0.3 km) uplake. Feb. 4, 1953, to June 8, 1954, nonrecording gage at site 1.5 mi (2.4 km) uplake and June 9, 1954, to June 21, 1957, water-stage recorder at site 0.2 mi (0.3 km) uplake.

REMARKS.--Some diversion from tributaries for irrigation. Water pumped from lake to reduce or limit high stages.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,079.20 ft (328.940 m) Jan. 28, 1953; minimum observed, 1,070.87 ft (326.401 m) Oct. 21, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 1,083.1 ft (330.13 m), from well-defined alkali line at gage, date unknown.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,074.70 ft (327.569 m) Apr. 27; minimum, 1,073.28 ft (327.136 m) Oct. 7.

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1073.35	1073.40	1073.50	1073.81	1074.16	1074.43	1074.62	1074.66	1074.43	1074.20	1074.09	1073.80
2	1073.31	1073.40	1073.52	1073.82	1074.18	1074.44	1074.62	1074.65	1074.43	1074.29	1074.08	1073.79
3	1073.30	1073.40	1073.52	1073.84	1074.20	1074.44	1074.62	1074.63	1074.43	1074.29	1074.07	1073.79
4	1073.30	1073.40	1073.52	1073.83	74.20	1074.45	1074.62	1074.61	1074.42	1074.29	1074.07	1073.78
5	1073.30	1073.41	1073.52	1073.85	74.20	1074.45	1074.62	1074.61	1074.42	1074.30	1074.03	1073.78
6	1073.30	1073.42	1073.54	1073.86	1074.23	1074.46	1074.63	1074.60	1074.41	1074.30	1074.01	1073.79
7	1073.30	1073.42	1073.55	1073.86	1074.26	1074.49	1074.63	1074.60	1074.38	1074.31	1073.99	1073.79
8	1073.30	1073.41	1073.54	1073.89	1074.29	1074.51	1074.63	1074.59	1074.36	1074.31	1073.98	1073.78
9	1073.30	1073.41	1073.55	1073.91	1074.32	1074.52	1074.62	1074.59	1074.35	1074.30	1073.98	1073.78
10	1073.30	1073.42	1073.55	1073.92	1074.33	1074.52	1074.62	1074.58	1074.33	1074.27	1073.95	1073.78
11	1073.30	1073.42	1073.56	1073.92	1074.33	1074.53	1074.61	1074.57	1074.31	1074.25	1073.92	1073.77
12	1073.30	1073.43	1073.56	1073.93	1074.33	1074.53	1074.59	1074.56	1074.30	1074.24	1073.90	1073.75
13	1073.31	1073.43	1073.62	1073.93	1074.33	1074.54	1074.60	1074.56	1074.29	1074.24	1073.90	1073.75
14	1073.31	1073.44	1073.66	1073.96	1074.33	1074.53	1074.58	1074.58	1074.27	1074.23	1073.87	1073.76
15	1073.32	1073.45	1073.71	1073.97	1074.35	1074.53	1074.60	1074.60	1074.26	1074.23	1073.87	1073.74
16	1073.32	1073.45	1073.72	1074.00	1074.35	1074.54	1074.64	1074.59	1074.24	1074.22	1073.85	1073.71
17	1073.32	1073.45	1073.76	1074.03	1074.36	1074.54	1074.67	1074.57	1074.24	1074.21	1073.83	1073.72
18	1073.33	1073.44	1073.77	1074.04	1074.36	1074.54	1074.67	1074.57	1074.24	1074.21	1073.82	1073.71
19	1073.33	1073.44	1073.77	1074.06	1074.37	1074.55	1074.67	1074.57	1074.23	1074.20	1073.80	1073.70
20	1073.33	1073.43	1073.77	1074.08	1074.38	1074.55	1074.67	1074.57	1074.22	1074.19	1073.79	1073.70
21	1073.34	1073.43	1073.78	1074.08	1074.39	1074.55	1074.66	1074.56	1074.21	1074.19	1073.78	1073.70
22	1073.34	1073.42	1073.78	1074.09	1074.39	1074.56	1074.66	1074.54	1074.19	1074.18	1073.78	1073.70
23	1073.35	1073.43	1073.78	1074.10	1074.40	1074.57	1074.67	1074.53	1074.19	1074.18	1073.78	1073.71
24	1073.35	1073.43	1073.78	1074.09	1074.41	1074.59	1074.67	1074.51	1074.18	1074.16	1073.78	1073.71
25	1073.35	1073.44	1073.78	1074.10	1074.41	1074.60	1074.67	1074.51	1074.17	1074.15	1073.80	1073.72
26	1073.35	1073.45	1073.78	1074.11	1074.43	1074.60	1074.67	1074.49	1074.16	1074.15	1073.80	1073.73
27	1073.36	1073.46	1073.78	1074.11	1074.43	1074.60	1074.67	1074.49	1074.16	1074.15	1073.80	1073.73
28	1073.36	1073.47	1073.79	1074.12	1074.44	1074.62	1074.67	1074.48	1074.17	1074.13	1073.80	1073.73
29	1073.38	1073.49	1073.80	1074.13	---	1074.63	1074.66	1074.46	1074.18	1074.13	1073.80	1073.73
30	1073.39	1073.48	1073.81	1074.13	---	1074.63	1074.66	1074.44	1074.18	1074.13	1073.80	1073.73
31	1073.39	---	1073.81	1074.14	---	1074.62	---	1074.43	---	1074.10	1073.80	---
MEAN	1073.33	1073.43	1073.67	1073.99	1074.33	1074.54	1074.64	1074.56	1074.28	1074.22	1073.89	1073.75
MAX	1073.39	1073.49	1073.81	1074.14	1074.44	1074.63	1074.67	1074.66	1074.43	1074.31	1074.09	1073.80
MIN	1073.30	1073.40	1073.50	1073.81	1074.16	1074.43	1074.58	1074.43	1074.16	1074.10	1073.78	1073.70

CAL YR 1977 MEAN 1073.96 MAX 1074.64 MIN 1073.23
WTR YR 1978 MEAN 1074.05 MAX 1074.67 MIN 1073.30

12470500 ROCKY FORD CREEK NEAR EPHRATA, WA

LOCATION.--Lat 47°18'46", long 119°26'40", in SW¼SW¼ sec.16, T.21 N., R.27 E., Grant County, Hydrologic Unit 17020015, on right bank 1.4 mi (2.3 km) downstream from source at Rocky Ford Springs, 5.0 mi (8.0 km) east of Ephrata, and 6.3 mi (10.1 km) upstream from mouth at Moses Lake.

DRAINAGE AREA.--458 mi^2 (1,186 km^2), of which 446 mi^2 (1,155 km^2) in vicinity of Banks and Soap Lakes is noncontributing.

PERIOD OF RECORD.--June 1909 to April 1910, July to December 1911, August 1942 to current year. Prior to January 1910, published as Upper Crab Creek near Ephrata.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,068.51 ft (325.682 m) Bureau of Reclamation datum. Prior to Jan. 1, 1912, nonrecording gages at sites 4.5 mi (7.2 km) to 5.5 mi (8.8 km) downstream at different datums. Aug. 19, 1942, to May 23, 1945, water-stage recorder at site 3.5 mi (5.6 km) downstream at datum 5.37 ft (1.637 m) lower. May 23, 1945 to June 15, 1977, water-stage recorder at site 0.2 mi (0.3 km) downstream at datum 3.53 ft (1.106 m) lower.

REMARKS.--Records excellent. Slight regulation by fish hatchery 1.5 mi (2.4 km) upstream.

AVERAGE DISCHARGE.--36 years (water years 1943-78), 78.7 ft^3/s (2.229 m^3/s), 57,020 acre-ft/yr (70.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 212 ft^3/s (6.00 m^3/s) Apr. 15-18, 1956, gage height, 3.58 ft (1.091 m) datum then in use; minimum observed, 20 ft^3/s (0.57 m^3/s) Aug. 13-18, 1911.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 75 ft^3/s (2.12 m^3/s) July 8, gage height, 5.42 ft (1.652 m); minimum discharge, 42 ft^3/s (1.19 m^3/s) Feb. 16 to Mar. 4, Mar. 8-11, gage height, 4.96 ft (1.512 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	65	53	45	44	43	46	47	58	70	70	63
2	72	66	53	45	44	43	46	48	59	70	70	63
3	72	64	52	45	44	43	45	47	59	70	71	63
4	71	63	52	45	44	43	46	48	60	71	72	62
5	71	63	52	47	44	43	46	49	60	72	72	65
6	71	63	53	49	44	43	46	49	60	72	72	66
7	70	60	56	49	44	43	46	49	60	73	72	67
8	70	61	55	49	44	43	46	50	60	74	72	68
9	70	60	54	49	44	43	46	50	60	74	73	67
10	70	61	54	49	43	43	46	51	60	74	72	67
11	68	60	54	48	43	43	46	51	60	70	68	66
12	68	60	54	48	43	43	46	51	61	62	64	66
13	68	61	55	48	43	43	46	52	62	63	65	66
14	68	60	54	48	43	43	46	52	61	63	64	65
15	68	59	54	46	43	43	45	52	62	63	65	65
16	68	58	54	48	43	43	46	52	63	63	64	65
17	68	57	54	48	43	44	45	52	63	63	64	65
18	67	57	53	48	43	44	46	53	64	63	65	66
19	67	56	50	48	43	44	46	54	65	65	65	65
20	67	56	47	48	43	44	46	54	64	67	64	65
21	67	56	47	47	43	44	46	55	63	67	65	67
22	67	56	47	47	43	45	46	56	65	66	65	67
23	68	56	47	47	43	45	46	56	65	68	65	67
24	67	56	47	47	43	45	46	56	67	67	65	66
25	65	56	47	45	43	45	47	57	67	67	65	66
26	65	55	46	43	43	45	47	57	67	68	65	65
27	65	55	46	44	43	45	47	56	67	68	65	65
28	65	54	46	45	43	46	47	56	68	68	65	65
29	65	53	46	45	---	45	47	56	68	68	65	65
30	65	53	46	44	---	45	47	57	68	69	64	65
31	64	---	45	44	---	45	---	58	---	69	63	---
TOTAL	2109	1760	1573	1450	1213	1359	1383	1631	1886	2107	2076	1963
MEAN	68.0	58.7	50.7	46.8	43.3	43.8	46.1	52.6	62.9	68.0	67.0	65.4
MAX	72	66	56	49	44	46	47	58	68	74	73	68
MIN	64	53	45	43	43	43	45	47	58	62	63	62
AC-FT	4180	3490	3120	2880	2410	2700	2740	3240	3740	4180	4120	3890

CAL YR 1977 TOTAL 21916 MEAN 60.0 MAX 73 MIN 45 AC-FT 43470
WTR YR 1978 TOTAL 20510 MEAN 56.2 MAX 74 MIN 43 AC-FT 40680

CRAB CREEK BASIN

12471000 MOSES LAKE AT MOSES LAKE, WA

LOCATION.--Lat 47°06'11", long 119°19'02", in SW¼SW¼ sec.28, T.19 N., R.28 E., Grant County, Hydrologic Unit 17020015, on east shore 35 ft (11 m) north of U.S. Highway 10 and Interstate 90, 1.7 mi (2.7 km) upstream from outlet, 2.7 mi (4.3 km) southwest of town of Moses Lake, and at mile 55.9 (89.9 km).

DRAINAGE AREA.--3,080 mi^2 (7,977 km^2), of which 665 mi^2 (1,722 km^2) is noncontributing.

PERIOD OF RECORD.--June 1909 to September 1914 and November 1936 to September 1945 (fragmentary), October 1945 to current year. Published as "at Neppel" 1912-14.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is Bureau of Reclamation datum. Prior to Apr. 3, 1910, nonrecording gage at site 0.6 mi (1.0 km) northeast at different datum. Apr. 3, 1910, to Sept. 30, 1914, and Nov. 19, 1936, to Nov. 24, 1944, nonrecording gages at site 2.8 mi (4.5 km) northeast at Parker Horn at various datums. Oct. 30, 1945, to Mar. 14, 1955, water-stage recorder at site near west shore on downstream side of bridge on U.S. Highway 10 at present datum.

REMARKS.--Elevation controlled between 1,046 (318.8 m) and 1,048 ft (319.4 m) by two outlet structures at south end of lake. Many small diversions for irrigation.

EXTREMES FOR PERIOD OF RECORD.-- Maximum elevation, 1,048.29 ft (319.519 m) Mar. 10, 1950; minimum observed, 1,038.17 ft (316.434 m) Aug. 27, 1910.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,047.02 ft (319.132 m) July 6; minimum, 1,043.67 ft (318.111 m) Jan. 2, 3, 5, 6, 7, 8.

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1046.78	1045.54	1044.42	1043.68	1043.83	1044.96	1045.92	1046.68	1046.81	1046.98	1046.77	1046.90
2	1046.76	1045.50	1044.41	1043.67	1043.84	1044.98	1045.95	1046.67	1046.81	1046.98	1046.77	1046.91
3	1046.73	1045.46	1044.41	1043.68	1043.86	1044.99	1045.98	1046.66	1046.85	1046.97	1046.77	1046.92
4	1046.71	1045.39	1044.38	1043.68	1043.87	1045.03	1046.00	1046.65	1046.88	1046.97	1046.76	1046.93
5	1046.67	1045.34	1044.37	1043.68	1043.89	1045.06	1046.02	1046.64	1046.90	1046.95	1046.75	1046.94
6	1046.64	1045.27	1044.37	1043.67	1043.92	1045.11	1046.05	1046.63	1046.91	1046.96	1046.74	1046.95
7	1046.62	1045.21	1044.35	1043.67	1043.95	1045.15	1046.05	1046.63	1046.91	1047.00	1046.74	1046.96
8	1046.60	1045.14	1044.30	1043.68	1043.98	1045.20	1046.06	1046.62	1046.91	1047.00	1046.74	1046.97
9	1046.59	1045.07	1044.25	1043.71	1044.01	1045.23	1046.07	1046.61	1046.91	1047.01	1046.74	1046.98
10	1046.57	1045.02	1044.19	1043.71	1044.04	1045.26	1046.09	1046.61	1046.91	1047.01	1046.72	1046.98
11	1046.56	1044.95	1044.14	1043.71	1044.06	1045.30	1046.13	1046.61	1046.91	1047.00	1046.70	1046.98
12	1046.54	1044.89	1044.09	1043.71	1044.10	1045.34	1046.16	1046.61	1046.90	1047.00	1046.69	1046.98
13	1046.53	1044.84	1044.12	1043.70	1044.23	1045.39	1046.19	1046.60	1046.89	1046.93	1046.70	1046.98
14	1046.52	1044.79	1044.14	1043.73	1044.37	1045.43	1046.23	1046.59	1046.90	1046.89	1046.69	1046.97
15	1046.50	1044.76	1044.10	1043.76	1044.50	1045.45	1046.28	1046.61	1046.89	1046.87	1046.70	1046.97
16	1046.49	1044.72	1044.07	1043.77	1044.59	1045.48	1046.35	1046.67	1046.89	1046.87	1046.70	1046.97
17	1046.47	1044.69	1044.05	1043.78	1044.65	1045.52	1046.40	1046.73	1046.89	1046.87	1046.69	1046.97
18	1046.46	1044.66	1044.02	1043.78	1044.70	1045.55	1046.44	1046.77	1046.89	1046.86	1046.70	1046.96
19	1046.45	1044.62	1043.98	1043.79	1044.74	1045.58	1046.48	1046.80	1046.89	1046.85	1046.71	1046.95
20	1046.44	1044.57	1043.95	1043.79	1044.77	1045.61	1046.50	1046.78	1046.90	1046.84	1046.71	1046.94
21	1046.42	1044.55	1043.91	1043.79	1044.79	1045.63	1046.54	1046.80	1046.90	1046.84	1046.73	1046.93
22	1046.41	1044.52	1043.88	1043.78	1044.80	1045.65	1046.58	1046.80	1046.92	1046.83	1046.77	1046.92
23	1046.39	1044.49	1043.86	1043.78	1044.82	1045.68	1046.61	1046.80	1046.94	1046.83	1046.78	1046.92
24	1046.35	1044.49	1043.83	1043.78	1044.83	1045.71	1046.66	1046.78	1046.94	1046.82	1046.80	1046.92
25	1046.16	1044.48	1043.79	1043.78	1044.94	1045.72	1046.71	1046.78	1046.93	1046.81	1046.82	1046.92
26	1045.99	1044.46	1043.76	1043.78	1044.87	1045.72	1046.76	1046.78	1046.94	1046.80	1046.85	1046.92
27	1045.89	1044.46	1043.73	1043.78	1044.89	1045.72	1046.74	1046.77	1046.96	1046.81	1046.86	1046.92
28	1045.83	1044.44	1043.70	1043.79	1044.93	1045.78	1046.72	1046.77	1046.96	1046.80	1046.87	1046.92
29	1045.77	1044.45	1043.69	1043.79	---	1045.83	1046.71	1046.77	1046.97	1046.79	1046.88	1046.92
30	1045.69	1044.42	1043.69	1043.80	---	1045.87	1046.69	1046.78	1046.97	1046.79	1046.89	1046.92
31	1045.62	---	1043.68	1043.81	---	1045.90	---	1046.79	---	1046.78	1046.90	---
MEAN	1046.39	1044.84	1044.05	1043.74	1044.38	1045.45	1046.34	1046.70	1046.91	1046.89	1046.76	1046.94
MAX	1046.78	1045.54	1044.42	1043.81	1044.93	1045.90	1046.76	1046.80	1046.97	1047.01	1046.90	1046.98
MIN	1045.62	1044.42	1043.68	1043.67	1043.83	1044.96	1045.92	1046.59	1046.81	1046.78	1046.69	1046.90

WTR YR 1978 MEAN 1045.79 MAX 1047.01 MIN 1043.67

12472300 DW 272A1 DRAIN NEAR ROYAL CAMP, WA

LOCATION.--Lat 46°54'48", long 119°52'32", in SE¼SW¼ sec.34, T.17 N., R.26 E., Grant County, Hydrologic Unit 17020015, on left bank 200 ft (61 m) upstream from entrance to DW 272A Drain and 2.7 mi (4.3 km) southwest of Royal Camp.

DRAINAGE AREA.--0.88 mi^2 (2.28 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1977 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 990 ft (302 m), from topographic map.

REMARKS.--Water-discharge records excellent. To obtain comparable records of water flow and water-quality data, all daily values have been computed with the day beginning at 0900 hours. Principal source of flow is waste and ground water return flows from irrigation.

EXTREMES FOR CURRENT PERIOD.--April to September 1977: Maximum discharge, 7.7 ft^3/s (0.22 m^3/s) Aug. 29, gage height, 4.52 ft (1.378 m); minimum daily, 1.2 ft^3/s (0.034 m^3/s) Apr. 1.

Water year 1978: Maximum discharge, 18 ft^3/s (0.51 m^3/s) July 1, gage height, 5.58 ft (1.70 m) from rating curve extended above 6.0 ft^3/s (0.17 m^3/s) on basis of computation of flow through culvert at gage height 5.58 ft (1.701 m); minimum, 0.54 ft^3/s (0.015 m^3/s) Nov. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, APRIL TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							1.2	5.1	2.4	4.8	3.7	4.1
2							1.3	5.5	2.2	4.3	3.8	4.0
3							1.4	5.9	2.3	4.3	3.8	4.2
4							1.5	5.3	2.4	4.5	3.8	4.4
5							2.0	5.4	2.4	4.3	4.0	4.3
6							2.5	5.4	2.3	4.1	3.3	4.2
7							2.7	4.8	2.7	4.1	3.3	4.2
8							2.7	4.8	3.0	4.4	3.4	4.6
9							2.7	4.9	3.6	4.1	2.5	4.6
10							2.7	3.7	3.5	4.0	2.8	4.8
11							2.7	3.2	3.5	3.9	2.7	4.8
12							2.7	3.6	3.6	4.2	3.4	4.4
13							2.7	3.5	3.7	4.5	3.4	4.4
14							4.0	3.1	4.4	4.1	3.5	5.1
15							4.2	3.3	4.8	3.4	3.4	5.1
16							4.4	3.5	4.1	3.4	3.6	5.1
17							3.7	3.6	4.0	3.8	3.9	4.5
18							4.9	4.0	4.8	4.1	3.6	5.0
19							4.3	4.0	4.5	4.3	4.4	4.9
20							5.0	4.2	4.3	4.3	4.5	4.4
21							4.7	4.1	3.9	4.3	4.6	3.5
22							4.3	4.1	4.3	4.5	5.1	3.7
23							3.5	4.1	4.4	4.1	5.5	3.7
24							3.2	4.3	4.0	4.7	5.3	2.7
25							2.8	3.8	4.0	4.6	5.0	2.5
26							3.4	3.5	3.9	4.6	4.8	2.7
27							2.8	2.6	4.1	4.0	5.3	2.6
28							3.8	2.9	4.5	4.0	5.6	3.2
29							5.2	2.7	4.6	4.3	5.7	3.2
30							4.9	2.3	5.1	4.2	4.0	3.0
31							---	2.4	---	3.8	3.7	---
TOTAL							97.9	123.6	111.3	130.0	125.4	121.9
MEAN							3.26	3.99	3.71	4.19	4.05	4.06
MAX							5.2	5.9	5.1	4.8	5.7	5.1
MIN							1.2	2.3	2.2	3.4	2.5	2.5
AC-FT							194	245	221	258	249	242

CRAB CREEK BASIN

12472300 DW 272A1 DRAIN NEAR ROYAL CAMP, WA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	1.2	1.3	.85	1.2	1.1	2.1	3.3	4.8	7.1	5.3	4.5
2	2.8	1.0	1.2	.93	1.2	1.1	1.9	3.4	6.0	6.5	4.9	4.1
3	2.8	1.1	1.1	.95	1.1	1.1	2.0	4.0	5.7	5.0	4.5	4.2
4	2.9	1.1	1.0	1.0	1.2	1.2	4.2	4.7	6.0	2.0	4.5	4.1
5	3.1	1.0	1.1	.91	1.4	1.0	4.5	3.2	5.2	2.7	4.1	5.0
6	3.0	1.1	1.2	.74	1.4	1.0	4.1	2.8	5.4	4.0	4.4	4.5
7	3.0	1.0	1.0	.75	1.4	1.1	2.0	2.7	6.0	4.0	4.7	4.1
8	3.1	1.1	1.0	1.1	1.4	1.0	1.9	3.5	6.0	2.4	4.0	4.4
9	3.3	1.1	1.0	2.9	1.4	.99	2.4	4.1	6.8	2.3	4.0	5.8
10	3.2	1.1	1.1	1.2	1.4	1.0	2.1	4.5	7.1	1.9	4.1	5.6
11	3.6	1.1	1.1	.95	1.3	1.0	1.6	4.8	7.1	2.0	3.9	5.4
12	3.7	1.1	1.1	.93	1.2	.99	2.3	4.5	7.1	3.7	4.5	3.3
13	3.7	1.1	1.5	1.2	1.1	.98	3.0	4.7	6.9	4.9	4.2	3.1
14	2.9	1.3	1.5	1.6	1.1	.90	3.6	5.2	6.4	4.8	4.7	3.1
15	3.1	1.3	1.4	1.5	1.1	.94	5.1	4.8	5.5	3.8	5.2	3.1
16	3.0	1.1	1.4	1.6	1.1	.94	6.9	4.8	5.1	4.4	5.1	3.9
17	2.6	1.1	1.5	1.5	1.1	.99	5.4	2.9	4.9	4.3	5.2	4.1
18	2.5	1.1	1.3	1.6	1.1	.94	3.4	2.5	5.4	5.1	5.4	4.1
19	1.9	1.0	1.2	1.5	1.1	.90	3.0	2.5	4.9	3.9	5.5	4.1
20	1.1	1.0	1.3	1.5	1.1	.90	2.7	2.4	4.7	4.6	5.7	4.2
21	1.1	1.1	1.4	1.5	1.1	.94	3.2	2.4	4.9	4.4	4.3	3.3
22	1.2	1.0	1.3	1.4	1.1	.90	3.5	3.3	4.4	5.2	4.4	4.1
23	1.1	1.0	1.2	1.3	1.1	.89	3.7	5.5	3.8	5.2	3.8	4.0
24	1.1	1.0	1.1	1.4	1.1	.86	3.2	5.7	4.2	5.6	3.9	4.0
25	1.1	1.1	1.1	1.4	1.1	.90	2.5	6.0	4.5	5.8	3.7	3.5
26	1.0	1.1	1.1	1.3	1.2	.89	2.8	6.0	4.5	5.8	3.9	3.7
27	1.1	1.2	1.0	1.2	1.2	1.4	3.6	5.2	5.1	4.6	3.5	4.4
28	1.1	1.2	1.0	1.3	1.2	1.2	3.7	5.5	5.0	4.1	3.7	4.4
29	1.1	1.1	1.0	1.2	---	.90	3.8	5.4	5.9	3.9	4.0	4.6
30	1.1	1.2	.89	1.3	---	2.4	4.0	6.3	5.8	3.8	4.4	4.6
31	1.1	---	.81	1.2	---	2.7	---	4.8	---	4.1	4.6	---
TOTAL	70.4	33.0	36.20	39.71	33.5	34.05	98.2	131.4	165.1	131.9	138.1	125.3
MEAN	2.27	1.10	1.17	1.28	1.20	1.10	3.27	4.24	5.50	4.25	4.45	4.18
MAX	3.7	1.3	1.5	2.9	1.4	2.7	6.9	6.3	7.1	7.1	5.7	5.8
MIN	1.0	1.0	.81	.74	1.1	.86	1.6	2.4	3.8	1.9	3.5	3.1
AC-FT	140	65	72	79	66	68	195	261	327	262	274	249

WTR YR 1978 TOTAL 1036.86 MEAN 2.84 MAX 7.1 MIN .74 AC-FT 2060

12472350 DW 272A DRAIN NEAR ROYAL CAMP, WA

LOCATION.--Lat 46°54'54", long 119°32'30", in NW¼NW¼ sec.3, T.16 N., R.26 E., Grant County, Hydrologic Unit 17020015, on right bank at upstream end of culvert under a county road, 20 ft (6 m) downstream from entrance of DW 272A1 Drain, 0.2 mi (0.3 km) upstream from entrance to DW 272 Drain, 1.4 mi (2.3 km) upstream from Crab Creek Lateral, and 2.7 mi (4.3 km) southwest of Royal Camp.

DRAINAGE AREA.--3.36 mi^2 (8.70 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1977 to current year.

GAGE.--Water-stage recorder and corrugated metal culvert control. Altitude of gage is 980 ft (299 m), from topographic map.

REMARKS.--Water-discharge records excellent. Flow includes that of DW 272A1 Drain (station 12472300). To obtain comparable records of water flow and water-quality data, all daily values have been computed with the day beginning at 0900 hours. Principal source of flow is waste and ground-water return flows from irrigation. During the irrigation season most of the flow is reused and during the nonirrigation season wasted to Crab Creek.

EXTREMES FOR CURRENT PERIOD.--April to September 1977: Maximum discharge, 22 ft^3/s (0.62 m^3/s) Aug. 23, gage height, 11.95 ft (3.642 m); minimum daily 6.0 ft^3/s (0.17 m^3/s) Apr. 1.

Water year 1978: Maximum discharge, 40 ft^3/s (1.13 m^3/s) July 1, gage height, 15.18 ft (4.627 m) from rating curve extended above 14 ft^3/s (0.40 m^3/s) on basis of computation of flow through a culvert at gage height 15.18 ft (4.627 m); minimum, 2.2 ft^3/s (0.062 m^3/s) Mar. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, APRIL TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							6.0	10	8.8	13	12	10
2							6.5	14	8.3	13	12	9.4
3							7.0	14	8.4	13	13	9.4
4							7.7	13	8.3	14	14	9.5
5							7.8	12	8.1	13	14	9.5
6							7.8	12	8.1	13	13	11
7							7.8	11	9.4	13	13	11
8							7.8	10	10	14	13	12
9							7.7	11	12	14	13	13
10							7.6	10	11	14	13	12
11							7.5	9.6	12	13	12	11
12							7.4	11	13	13	13	12
13							7.9	10	12	12	13	12
14							9.6	9.5	12	12	13	13
15							12	10	12	11	14	12
16							11	10	11	11	14	12
17							11	11	11	12	14	11
18							12	11	12	13	13	12
19							12	11	11	13	14	12
20							12	11	12	12	14	12
21							9.8	11	11	12	15	11
22							9.3	11	12	12	16	12
23							8.0	12	12	13	17	12
24							8.2	11	11	13	17	9.7
25							7.9	11	12	14	18	9.2
26							9.0	10	12	13	17	8.8
27							8.6	9.0	13	14	16	8.7
28							10	8.9	14	15	16	9.1
29							12	8.6	14	14	16	8.1
30							11	8.4	14	13	12	7.9
31							---	9.0	---	12	9.7	---
TOTAL							269.9	331.0	335.4	401	433.7	322.3
MEAN							9.00	10.7	11.2	12.9	14.0	10.7
MAX							12	14	14	15	18	13
MIN							6.0	8.4	8.1	11	9.7	7.9
AC-FT							535	657	665	795	860	639

12472350 DW 272A DRAIN NEAR ROYAL CAMP, WA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	3.4	3.3	2.6	3.5	3.0	4.5	6.0	10	22	12	11
2	7.4	3.0	3.1	2.8	3.4	3.0	4.4	5.9	12	19	11	10
3	7.1	3.2	3.0	2.9	3.3	3.0	4.5	7.7	12	16	11	9.6
4	8.5	3.2	2.9	3.0	3.4	3.1	6.5	10	13	11	11	9.3
5	7.9	3.1	3.0	2.8	3.7	2.9	6.8	8.2	12	11	12	10
6	7.8	3.0	3.1	2.5	3.7	2.8	5.8	7.4	12	11	12	9.5
7	7.8	2.9	2.8	2.5	3.8	2.9	5.1	6.8	14	12	12	9.5
8	7.9	2.9	2.7	2.9	3.7	2.8	5.3	7.7	13	10	11	9.8
9	7.9	3.0	2.8	5.9	3.7	2.8	6.1	8.5	15	10	10	12
10	7.6	3.0	3.0	3.4	3.8	2.8	7.1	11	16	10	11	11
11	7.9	3.0	2.9	3.1	3.7	2.9	5.4	11	16	11	11	12
12	8.9	2.9	2.9	3.0	3.6	2.8	6.0	9.7	17	13	11	10
13	9.5	3.0	3.5	3.3	3.4	2.6	7.2	10	16	16	11	9.5
14	8.9	2.9	3.5	3.9	3.4	2.5	8.8	11	15	14	12	9.3
15	9.0	2.9	3.5	4.0	3.3	2.5	9.4	9.5	14	13	15	8.9
16	9.1	2.8	3.4	4.0	3.3	2.6	12	9.5	14	14	13	8.7
17	9.1	2.9	3.3	4.0	3.2	2.6	12	6.5	13	14	12	8.8
18	8.8	2.9	3.4	4.2	3.2	2.6	8.1	5.9	13	14	11	8.9
19	5.5	2.8	3.2	4.1	3.2	2.6	6.6	6.0	13	14	10	8.9
20	4.1	2.7	3.5	4.0	3.1	2.5	6.8	6.4	14	14	10	9.0
21	3.9	2.9	3.6	4.1	3.1	2.6	7.6	6.3	13	13	13	7.8
22	4.0	2.7	3.5	3.8	3.1	2.6	8.1	7.6	13	14	13	8.8
23	3.8	2.7	3.3	3.8	3.2	2.6	8.3	11	13	14	11	8.4
24	3.7	2.7	3.1	3.7	3.1	2.9	8.4	11	14	14	11	8.3
25	3.5	2.9	3.0	3.8	3.1	2.6	5.8	11	13	13	11	7.5
26	3.5	2.8	3.1	3.6	3.2	2.6	5.9	11	13	14	12	7.9
27	3.5	3.0	3.0	3.6	3.2	3.2	6.7	9.8	13	12	10	8.6
28	3.5	3.0	3.0	3.6	3.2	3.9	6.4	11	14	11	10	8.5
29	3.5	2.8	3.0	3.5	---	4.6	6.9	10	15	9.9	10	9.0
30	3.3	3.0	2.8	3.5	---	4.4	6.9	11	17	9.6	11	8.9
31	3.4	---	2.6	3.5	---	5.2	---	9.3	---	10	11	---
TOTAL	197.9	88.0	96.8	109.4	94.6	92.5	209.4	273.7	412	403.5	352	279.4
MEAN	6.38	2.93	3.12	3.53	3.38	2.98	6.98	8.83	13.7	13.0	11.4	9.31
MAX	9.5	3.4	3.6	5.9	3.8	5.2	12	11	17	22	15	12
MIN	3.3	2.7	2.6	2.5	3.1	2.5	4.4	5.9	10	9.6	10	7.5
AC-FT	393	175	192	217	188	183	415	543	817	800	698	554

WTR YR 1978 TOTAL 2609.2 MEAN 7.15 MAX 22 MIN 2.5 AC-FT 5180

CRAB CREEK BASIN

12472600 CRAB CREEK NEAR BEVERLY, WA

LOCATION.--Lat 46°49'48", long 119°49'48", in NW¼SW¼ sec.33, T.16 N., R.24 E., Grant County, Hydrologic Unit 17020015, on right bank 4.9 mi (7.9 km) east of Beverly and at mile 4.5 (7.2 km).

DRAINAGE AREA.--4,842 mi^2 (12,541 km^2), of which 665 mi^2 (1,722 km^2) in the vicinity of Soap Lake is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to current year.

PEVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 500 ft (152 m), from topographic map.

REMARKS.--Water-discharge records good. Many diversions above station for irrigation. Flow largely regulated by Potholes Reservoir 41.3 mi (66.5 km) upstream. A major portion of flow is return flows, including trans-basin diversions, from parts of the Columbia Basin project.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 343 ft^3/s (9.71 m^3/s) Nov. 13, 1973, Oct. 2, 1977; maximum gage height, 5.97 ft (1.820 m) Feb. 16, 1969, backwater from ice; minimum discharge, 10 ft^3/s (0.28 m^3/s) Jan. 10, 1963, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum daily dicharge, 343 ft^3/s (9.71 m^3/s) Oct. 2; minimum, 125 ft^3/s (3.54 m^3/s) June 23, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	340	270	208	165	209	197	203	210	197	188	233	314
2	343	280	200	165	209	190	201	202	186	205	239	312
3	342	270	203	180	210	186	199	201	180	223	226	311
4	337	260	198	200	213	187	193	189	174	238	222	308
5	332	240	194	230	216	184	191	187	164	250	217	312
6	328	230	191	250	221	183	189	198	158	257	214	316
7	322	220	190	255	225	186	189	192	151	262	214	315
8	318	215	190	260	237	189	187	191	147	260	220	313
9	317	210	185	265	241	186	193	180	146	265	224	312
10	317	210	184	265	233	183	193	169	155	265	220	315
11	315	210	187	265	220	183	185	178	172	267	218	316
12	312	205	195	266	212	179	196	186	185	262	218	320
13	308	205	236	244	205	170	188	191	195	250	220	325
14	304	200	272	244	201	169	184	207	199	236	227	326
15	295	201	283	260	200	170	194	224	199	230	240	317
16	279	191	271	270	202	165	199	230	203	224	249	314
17	278	187	253	275	199	167	222	243	195	226	260	317
18	278	189	241	270	196	169	235	245	184	231	273	312
19	276	189	227	258	195	165	231	239	187	236	282	308
20	277	180	216	246	194	167	224	225	177	238	288	310
21	279	168	211	237	194	165	220	210	161	234	293	311
22	275	172	212	228	194	165	217	208	143	222	298	308
23	265	190	214	224	187	163	211	202	131	217	305	301
24	260	188	214	216	187	166	208	193	128	217	314	303
25	250	194	208	214	193	167	205	193	131	219	323	302
26	250	209	197	211	206	173	206	194	148	220	327	299
27	250	228	189	208	210	186	212	200	156	220	326	294
28	245	225	201	207	204	198	219	197	158	219	324	296
29	245	218	193	215	---	202	219	199	170	218	323	297
30	240	217	195	212	---	204	214	200	180	217	319	291
31	240	---	185	208	---	209	---	201	---	225	315	---
TOTAL	9017	6371	6543	7213	5815	5573	6127	6284	5060	7241	8171	9295
MEAN	291	212	211	233	208	180	204	203	149	234	264	310
MAX	343	280	283	275	241	209	235	245	203	267	327	326
MIN	240	168	184	165	187	163	184	169	128	188	214	291
AC-FT	17890	12640	12980	14310	11530	11050	12150	12460	10040	14360	16210	18440

CAL YR 1977 TOTAL 76082 MEAN 208 MAX 343 MIN 112 AC-FT 150900
WTR YR 1978 TOTAL 82710 MEAN 227 MAX 343 MIN 128 AC-FT 164100

12472600 CRAB CREEK NEAR BEVERLY, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at lower Crab Creek road bridge, 0.8 mi (1.3 km) upstream from gage.

PERIOD OF RECORD.--Water years 1959-72, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August 1959 to September 1962, July 1968 to August 1970.

REMARKS.--Prior to 1975 samples collected at site 1.5 mi (2.4 km) upstream from gage. Water quality records published as 12472500 "near Smyrna" for period 1959-63.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT , 1977										
24...	1400	E260	850	8.5	12.5	35	9	13.2	260	0
NOV										
14...	1410	189	940	8.6	9.2	40	8	13.6	290	0
DEC										
12...	1355	196	1200	8.5	5.5	--	5	13.4	280	0
JAN , 1978										
09...	1320	E265	1100	8.5	2.5	35	15	13.1	280	0
FEB										
20...	1420	194	1250	8.5	6.1	60	15	13.5	300	0
MAR										
13...	1415	168	938	8.5	10.6	30	33	--	270	0
APR										
10...	1415	195	800	8.7	16.0	30	32	12.2	240	0
MAY										
08...	1255	192	640	8.5	20.0	25	48	8.8	220	0
JUN										
05...	1410	164	650	8.4	26.8	20	38	8.0	200	0
JUL										
10...	1515	263	655	8.3	21.5	35	24	12.9	200	0
AUG										
21...	1305	293	660	7.9	19.8	40	16	7.4	210	0
SEP										
11...	1415	317	790	8.1	17.5	40	15	9.3	220	0

E Estimated.

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)
OCT , 1977										
24...	51	32	87	41	2.4	11	320	8	280	1.7
NOV										
14...	58	35	97	41	2.5	12	360	0	300	1.4
DEC										
12...	56	35	97	41	2.5	12	350	0	290	1.8
JAN , 1978										
09...	55	35	110	45	2.9	13	360	1	300	1.8
FEB										
20...	59	36	110	43	2.8	14	370	0	300	1.9
MAR										
13...	51	35	110	45	2.9	13	340	7	290	1.8
APR										
10...	45	30	85	43	2.4	11	300	0	250	1.0
MAY										
08...	42	27	75	42	2.2	10	270	0	220	1.4
JUN										
05...	39	24	65	40	2.0	10	260	0	210	1.7
JUL										
10...	40	24	68	41	2.1	9.6	270	0	220	2.2
AUG										
21...	43	26	69	40	2.1	10	280	0	230	5.6
SEP										
11...	44	27	79	42	2.3	12	300	0	250	3.8

12472600 CRAB CREEK NEAR BEVERLY, WA--Continued

WATER QUALITY DATA

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)
OCT , 1977										
24...	110	36	2.1	.03	.10	.55	.65	.10	.02	.06
NOV										
14...	140	38	3.1	.03	.08	.44	.52	.12	.03	.09
DEC										
12...	140	46	3.1	.03	.15	.39	.54	.13	.09	.28
JAN , 1978										
09...	150	49	2.8	.03	.29	.61	.90	.27	.19	.58
FEB										
20...	150	49	2.7	.02	.12	.58	.70	.26	.11	.34
MAR										
13...	130	48	2.5	.02	.12	1.1	1.2	.33	.05	.15
APR										
10...	120	41	1.8	.02	.09	.83	.92	.22	.05	.15
MAY										
08...	100	30	1.4	.03	.14	.96	1.1	.34	.06	.18
JUN										
05...	81	27	1.2	.04	.18	.80	.98	.26	.13	.40
JUL										
10...	83	26	.87	.02	.11	.62	.73	.15	.04	.12
AUG										
21...	94	27	.96	.02	.11	.59	.70	.04	.04	.12
SEP										
11...	100	30	1.2	.01	.17	.75	.92	.10	.05	.15

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT , 1977									
24...	6	0	0	1	14	.0	0	0	10
NOV									
14...	7	1	0	0	21	.0	1	0	10
DEC									
12...	6	0	0	1	6	.0	1	0	10
JAN , 1978									
09...	8	0	0	2	8	.0	1	0	10
FEB									
20...	7	0	0	2	1	.0	20	0	0
MAR									
13...	7	0	0	3	4	.0	1	0	10
APR									
10...	7	0	0	1	3	.0	0	0	10
MAY									
08...	8	1	10	3	9	.0	1	0	10
JUN									
05...	6	0	0	2	8	.0	0	0	10
JUL									
10...	5	<1	0	2	11	.0	0	0	<3
AUG									
21...	5	0	0	1	13	.0	1	0	20
SEP									
11...	6	<1	0	2	13	.4	1	0	4

12472800 COLUMBIA RIVER BELOW PRIEST RAPIDS DAM, WA

LOCATION.--Lat 46°37'44", long 119°51'49", in SE¼NW¼ sec.7, T.13 N., R.24 E., Grant County, Hydrologic Unit 17020016, on left bank 2.6 mi (4.2 km) downstream from Priest Rapids Dam, 14.7 mi (23.7 km) south of Beverly, and at mile 394.5 (634.8 km).

DRAINAGE AREA.--96,000 mi^2 (249,000 km^2), approximately.

PERIOD OF RECORD.--January 1917 to current year. January 1917 to September 1930, at site 3.4 mi (5.5 km) downstream, published as "at Vernita." October 1930 to July 27, 1959, at site 46.5 mi (74.8 km) upstream, published as "at Trinidad."

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1930, nonrecording gages at site 3.4 mi (5.5 km) downstream at datum 388.7 ft (118.48 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1930, to July 27, 1959, water-stage recorder at site 46.5 mi (74.8 km) upstream at datum 499.3 ft (152.19 m) National Geodetic Vertical Datum of 1929 (river-profile survey).

REMARKS.--Records excellent. Diversions for irrigation of about 500,000 acres (2,020 km^2) above station. Flow regulated by 10 major reservoirs and numerous smaller reservoirs and powerplants.

AVERAGE DISCHARGE.--61 years, 120,200 ft^3/s (3,404 m^3/s), 87,080,000 acre-ft/yr (107,000 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft^3/s (19,600 m^3/s) June 12, 1948, gage height, 59.35 ft (18.090 m), site and datum then in use; minimum, 4,120 ft^3/s (117 m^3/s) Feb. 10, 1932, gage height, 11.40 ft (3.475 m) site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft^3/s (21,000 m^3/s), based on information obtained at other points.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 203,000 ft^3/s (5,750 m^3/s) June 7, elevation, 411.78 ft (125.511 m); minimum, 28,300 ft^3/s (801 m^3/s) Nov. 9, elevation, 395.01 ft (120.399 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60000	75600	94900	69100	134000	111000	126000	132000	132000	124000	126000	86300
2	47300	79000	77300	88700	124000	113000	121000	138000	137000	99800	110000	72100
3	60300	94500	54100	111000	114000	123000	126000	141000	93100	82000	67700	65500
4	83900	88800	58400	94000	104000	109000	129000	148000	95900	101000	81600	79900
5	76100	63900	89600	103000	75500	91700	138000	162000	125000	88600	92200	104000
6	73600	58300	85700	95600	88600	112000	141000	149000	143000	138000	84000	126000
7	71900	79700	95700	99500	101000	90000	140000	125000	143000	130000	104000	146000
8	66500	101000	102000	66600	92400	80900	140000	138000	162000	127000	121000	150000
9	48500	71400	80700	90300	93300	85700	124000	153000	151000	132000	114000	150000
10	66900	62800	76000	106000	96300	88500	130000	168000	150000	128000	118000	155000
11	80200	78200	74000	136000	93600	76800	137000	160000	158000	140000	113000	132000
12	73500	68000	97200	96700	54900	58300	138000	153000	158000	142000	109000	109000
13	62600	53500	72300	101000	109000	86900	157000	140000	146000	142000	80200	132000
14	69400	89400	79200	86000	114000	98900	172000	134000	145000	143000	103000	121000
15	48500	98500	86600	90600	105000	85900	182000	145000	149000	159000	113000	120000
16	41900	102000	101000	99300	119000	90700	149000	144000	125000	160000	99600	111000
17	75700	105000	75700	94400	114000	85000	127000	148000	131000	151000	112000	116000
18	77100	96400	69400	97600	102000	70300	135000	143000	99500	96700	98300	97600
19	81900	94100	93800	92200	81300	57100	138000	132000	130000	136000	74300	99700
20	78400	99100	89300	95300	96200	93000	142000	149000	132000	132000	78500	116000
21	73500	109000	98800	95700	116000	88300	143000	156000	130000	153000	107000	95200
22	65700	114000	111000	84500	120000	104000	141000	167000	121000	147000	91700	96000
23	46100	105000	79500	121000	121000	109000	137000	169000	117000	130000	100000	94100
24	54900	60500	55200	110000	125000	119000	140000	170000	80200	135000	71200	72500
25	60100	78500	39000	113000	109000	103000	126000	167000	123000	135000	86000	88800
26	79900	66000	58400	129000	80500	85000	131000	163000	96600	117000	97900	98200
27	85600	48000	106000	125000	107000	119000	141000	166000	138000	89800	57900	92400
28	79800	83400	93800	109000	112000	120000	142000	165000	120000	111000	93800	104000
29	49400	73600	80800	85100	---	107000	141000	159000	111000	107000	89700	97000
30	47100	98900	84300	136000	---	105000	117000	158000	132000	114000	107000	108000
31	71900	---	78600	137000	---	118000	---	134000	---	122000	80600	---
TOTAL	2058100	2486100	2535700	3157200	2902600	2985000	4151000	4668000	3874300	3904900	2966200	3235300
MEAN	66390	82870	81800	101800	103700	96290	138400	150600	129100	126000	95680	107800
MAX	85600	114000	111000	137000	134000	123000	182000	170000	162000	160000	126000	155000
MIN	41900	48000	39000	66600	54900	57100	117000	125000	80200	82000	57900	65500
AC-FT	4082000	4931000	5030000	6262000	5757000	5921000	8234000	9259000	7685000	7745000	5883000	6417000

CAL YR 1977 TOTAL 30854800 MEAN 84530 MAX 146000 MIN 38400 AC-FT 61200000
WTR YR 1978 TOTAL 38924400 MEAN 106600 MAX 182000 MIN 39000 AC-FT 77210000

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 46°38'34", long 119°43'54", in NW¼SE¼ sec.6, T.13 N., R.25 E., Grant County, Hydrologic Unit 17020016, at State Highway 24 Vernita Bridge crossing, 9.0 mi (14.5 km) downstream from Priest Rapids Dam, and at mile 388.1 (624.5 km).

DRAINAGE AREA.--96,000 mi^2 (248,600 km^2), approximately.

PERIOD OF RECORD.--Water years 1962-63, 1972, 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1974 to current year.

INSTRUMENTATION.--Temperature recorder since July 1974.

REMARKS.--October 1971 to September 1972, at site 6.4 mi (10.3 km) upstream, published as 12472800 "below Priest Rapids Dam." Prior to October 1971 published as 12472800 "at Vernita Ferry."

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 20.5°C Aug. 16-21, 1977; minimum, 1.5°C Feb. 8-10, 1975.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 20.0°C Aug.9-10; minimum, 2.0°C Feb. 5-10.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT , 1977										
24...	1315	52400	150	8.0	15.6	10	2	--	11.5	--
NOV										
14...	1330	114000	148	7.5	11.5	15	1	--	12.5	--
DEC										
12...	1315	98300	148	7.9	7.7	--	2	--	11.9	--
JAN , 1978										
09...	1235	82600	161	8.0	4.2	5	2	--	13.4	--
FEB										
27...	1500	127000	170	7.4	2.8	--	1	--	14.3	<1
MAR										
27...	1100	113000	167	7.1	5.8	--	2	--	13.7	2
APR										
19...	1330	135000	141	8.1	6.9	--	2	--	13.2	<1
MAY										
17...	1200	138000	138	7.8	10.4	--	3	--	13.3	<1
JUN										
01...	1330	115000	123	7.4	12.9	--	--	1.5	12.9	2
JUL										
11...	1200	162000	109	8.3	16.2	--	--	1.2	10.5	2
AUG										
07...	1300	98300	132	8.2	19.1	--	--	1.1	11.7	<1
SEP										
05...	1300	135000	123	8.1	18.7	--	--	2.0	8.3	1

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)
OCT , 1977										
24...	--	--	--	--	--	--	--	--	--	--
NOV										
14...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	--	--	--	--	--	--	--	--	--	--
JAN , 1978										
09...	--	--	--	--	--	--	--	--	--	--
FEB										
27...	7	81	14	23	5.6	2.4	6	.1	.9	81
MAR										
27...	12	81	14	23	5.7	3.1	8	.2	1.0	82
APR										
19...	<1	73	13	21	4.9	2.0	6	.1	.9	73
MAY										
17...	2	69	14	20	4.7	2.3	7	.1	.8	68
JUN										
01...	<1	59	6	17	4.1	2.7	9	.2	.9	--
JUL										
11...	1	58	12	17	3.7	2.0	7	.1	.8	--
AUG										
07...	<1	61	3	18	4.0	2.3	7	.1	.8	--
SEP										
05...	<1	64	10	19	4.1	--	--	--	.7	--

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

WATER QUALITY DATA

DATE	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)
OCT , 1977										
24...	--	--	--	--	--	--	--	--	--	--
NOV										
14...	--	--	--	--	--	--	--	--	--	--
DEC										
12...	--	--	--	--	--	--	--	--	--	--
JAN , 1978										
09...	--	--	--	--	--	--	--	--	--	--
FEB										
27...	0	66	5.2	16	1.3	.2	5.8	89	95	.12
MAR										
27...	0	67	10	15	4.1	.2	5.2	89	98	.12
APR										
19...	0	60	.9	12	5.4	.2	4.5	87	87	.12
MAY										
17...	0	56	1.7	13	1.4	.2	6.6	80	83	.11
JUN										
01...	--	53	--	11	1.6	.1	4.6	75	74	.10
JUL										
11...	--	46	--	19	.9	.1	5.2	66	66	.09
AUG										
07...	--	58	--	5.5	1.3	.1	4.4	75	71	.10
SEP										
05...	--	54	--	9.6	1.1	.1	5.0	76	--	.10

DATE	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)
OCT , 1977										
24...	--	--	.09	.07	--	--	--	--	--	--
NOV										
14...	--	--	.11	.02	--	--	--	--	--	--
DEC										
12...	--	--	.12	.02	--	--	--	--	--	--
JAN , 1978										
09...	--	--	.19	.04	--	--	--	--	--	--
FEB										
27...	38500	10	.19	.01	.02	.03	.02	.01	.22	.97
MAR										
27...	27200	3	.14	.00	3.8	3.8	3.5	.30	3.9	17
APR										
19...	31700	10	.18	.01	.33	.34	.31	.03	.52	2.3
MAY										
17...	29800	4	.05	.03	.29	.32	.15	.17	.37	1.6
JUN										
01...	23600	--	.01	.01	--	--	--	.29	--	--
JUL										
11...	26200	0	.02	.00	.21	.21	.04	.17	.23	1.0
AUG										
07...	14900	2	.02	.00	.17	.17	.08	.09	.19	.84
SEP										
05...	27700	5	.03	.00	.40	.40	.26	.14	.43	1.9

DATE	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1977										
24...	.03	--	.00	.00	--	--	--	--	--	--
NOV										
14...	.03	--	.01	.03	--	--	--	--	--	--
DEC										
12...	.02	--	.02	.06	--	--	--	--	--	--
JAN , 1978										
09...	.03	--	.02	.06	--	--	--	--	--	--
FEB										
27...	.04	.03	--	--	.6	--	--	4	1370	82
MAR										
27...	.03	.02	--	--	2.0	--	--	5	1530	93
APR										
19...	.02	.00	--	--	--	--	.4	4	1460	89
MAY										
17...	.05	.02	--	--	--	--	--	6	2240	91
JUN										
01...	.01	.01	--	--	2.7	--	--	5	1550	92
JUL										
11...	.00	.00	--	--	--	2.2	.8	5	2190	94
AUG										
07...	.01	.02	.01	.03	2.3	--	--	6	1590	99
SEP										
05...	.03	.01	--	--	2.3	--	--	3	1090	92

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

WATER QUALITY DATA

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)
APR , 1978										
19...	1330	1	0	1	200	100	100	2	1	1
JUL										
11...	1200	1	0	1	200	0	200	--	--	--

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)
APR , 1978										
19...	0	0	0	0	0	0	28	25	3	290
JUL										
11...	0	0	0	2	1	1	15	13	2	120

DATE	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG)
APR , 1978										
19...	270	20	21	17	4	0	0	0	.0	.0
JUL										
11...	--	50	--	--	--	20	20	0	1.0	.0

DATE	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, SUS-PENDED RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
APR , 1978										
19...	.0	0	0	0	0	0	0	70	30	40
JUL										
11...	.1	0	0	0	0	0	0	40	30	10

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	16.5	16.5	16.5	14.0	13.5	14.0	8.5	8.5	8.5	4.5	4.0	4.5
2	16.5	16.0	16.5	13.5	13.5	13.5	8.5	8.5	8.5	4.0	4.0	4.0
3	16.5	16.0	16.0	13.5	13.0	13.0	8.5	8.5	8.5	4.0	4.0	4.0
4	16.5	16.0	16.0	13.0	12.5	12.5	8.5	8.5	8.5	4.0	3.5	3.5
5	16.5	16.0	16.0	12.5	12.5	12.5	8.5	8.0	8.5	3.5	3.5	3.5
6	16.5	16.0	16.0	12.5	12.0	12.5	8.5	8.0	8.0	3.5	3.5	3.5
7	16.0	16.0	16.0	12.0	12.0	12.0	8.0	8.0	8.0	3.5	3.5	3.5
8	16.0	16.0	16.0	12.0	11.5	11.5	8.0	7.5	7.5	3.5	3.5	3.5
9	16.0	15.5	15.5	11.5	11.5	11.5	7.0	7.0	7.0	3.5	3.5	3.5
10	15.5	15.5	15.5	11.5	11.5	11.5	7.0	7.0	7.0	3.5	3.5	3.5
11	15.5	15.0	15.5	11.5	11.0	11.0	7.0	7.0	7.0	4.0	3.5	4.0
12	15.5	15.0	15.5	11.5	11.0	11.5	7.0	7.0	7.0	4.0	4.0	4.0
13	15.5	15.5	15.5	11.5	11.0	11.0	7.0	7.0	7.0	4.0	4.0	4.0
14	15.5	15.5	15.5	11.0	11.0	11.0	7.0	7.0	7.0	4.0	4.0	4.0
15	15.5	15.0	15.5	11.0	11.0	11.0	7.0	7.0	7.0	4.0	4.0	4.0
16	15.5	15.5	15.5	11.0	10.5	11.0	6.5	6.5	6.5	4.5	4.0	4.5
17	15.5	15.0	15.5	10.5	10.5	10.5	6.5	6.5	6.5	4.5	4.5	4.5
18	15.5	15.0	15.5	10.5	10.0	10.0	6.5	6.5	6.5	4.5	4.5	4.5
19	15.5	15.0	15.0	10.0	9.5	10.0	6.5	6.5	6.5	4.5	4.5	4.5
20	15.0	15.0	15.0	9.5	9.5	9.5	6.5	6.5	6.5	4.5	4.5	4.5
21	15.0	15.0	15.0	9.5	9.0	9.0	6.5	6.0	6.0	4.5	4.5	4.5
22	15.0	15.0	15.0	9.0	9.0	9.0	6.0	6.0	6.0	4.5	4.5	4.5
23	15.0	15.0	15.0	9.0	9.0	9.0	6.0	6.0	6.0	4.5	4.0	4.0
24	15.0	15.0	15.0	9.0	8.5	9.0	6.0	6.0	6.0	4.0	4.0	4.0
25	15.0	15.0	15.0	8.5	8.5	8.5	6.0	5.5	6.0	4.0	4.0	4.0
26	15.0	14.5	14.5	9.0	8.5	8.5	5.5	5.5	5.5	4.0	3.5	4.0
27	14.5	14.5	14.5	9.0	8.5	8.5	5.5	5.5	5.5	3.5	3.5	3.5
28	14.5	14.5	14.5	9.0	8.5	8.5	5.5	5.5	5.5	3.5	3.5	3.5
29	14.5	14.5	14.5	9.0	8.5	9.0	5.5	5.0	5.0	3.5	3.0	3.5
30	14.5	14.0	14.0	8.5	8.5	8.5	5.0	5.0	5.0	3.0	3.0	3.0
31	14.0	14.0	14.0	---	---	---	5.0	4.5	4.5	3.0	2.5	2.5
MONTH	16.5	14.0	15.5	14.0	8.5	10.5	8.5	4.5	6.5	4.5	2.5	4.0

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2.5	2.5	2.5	3.0	3.0	3.0	5.5	5.5	5.5	9.0	8.5	8.5
2	2.5	2.5	2.5	3.0	2.5	3.0	6.0	5.5	5.5	9.5	9.0	9.0
3	2.5	2.5	2.5	3.0	2.5	2.5	6.0	5.5	5.5	9.5	9.0	9.0
4	2.5	2.5	2.5	2.5	2.5	2.5	5.5	5.5	5.5	9.0	9.0	9.0
5	2.5	2.0	2.0	2.5	2.5	2.5	5.5	5.5	5.5	9.0	9.0	9.0
6	2.0	2.0	2.0	2.5	2.5	2.5	5.5	5.5	5.5	9.5	9.0	9.5
7	2.0	2.0	2.0	3.0	2.5	2.5	5.5	5.5	5.5	10.0	9.5	9.5
8	2.5	2.0	2.0	3.0	2.5	3.0	6.0	5.5	5.5	10.0	9.5	10.0
9	2.5	2.0	2.5	3.0	3.0	3.0	6.0	5.5	5.5	10.0	10.0	10.0
10	2.5	2.0	2.5	3.0	3.0	3.0	6.0	5.5	6.0	10.0	10.0	10.0
11	2.5	2.5	2.5	3.5	3.0	3.0	6.0	6.0	6.0	10.0	10.0	10.0
12	2.5	2.5	2.5	3.5	3.0	3.5	6.0	6.0	6.0	10.0	10.0	10.0
13	2.5	2.5	2.5	3.5	3.5	3.5	6.5	6.0	6.5	10.0	10.0	10.0
14	2.5	2.5	2.5	3.5	3.5	3.5	6.5	6.5	6.5	10.0	10.0	10.0
15	2.5	2.5	2.5	4.0	3.5	3.5	7.0	6.5	6.5	10.5	10.0	10.0
16	2.5	2.5	2.5	4.0	3.5	4.0	6.5	6.5	6.5	10.5	10.0	10.0
17	2.5	2.5	2.5	4.0	4.0	4.0	6.5	6.5	6.5	10.5	10.0	10.5
18	2.5	2.5	2.5	4.5	4.0	4.5	6.5	6.5	6.5	10.5	10.5	10.5
19	2.5	2.5	2.5	4.5	4.5	4.5	7.0	6.5	6.5	11.0	11.0	11.0
20	2.5	2.5	2.5	5.0	4.5	4.5	7.0	6.5	7.0	11.5	11.0	11.0
21	2.5	2.5	2.5	5.0	4.5	5.0	7.0	7.0	7.0	12.0	11.5	11.5
22	2.5	2.5	2.5	5.0	5.0	5.0	7.0	7.0	7.0	11.5	11.5	11.5
23	2.5	2.5	2.5	5.0	5.0	5.0	7.0	7.0	7.0	11.5	11.5	11.5
24	2.5	2.5	2.5	5.0	5.0	5.0	7.5	7.0	7.5	11.5	11.5	11.5
25	2.5	2.5	2.5	5.0	5.0	5.0	7.5	7.5	7.5	11.5	11.5	11.5
26	3.0	2.5	2.5	5.5	5.0	5.5	8.0	7.5	8.0	11.5	11.5	11.5
27	3.0	2.5	3.0	5.5	5.5	5.5	8.0	8.0	8.0	12.0	11.5	11.5
28	3.0	3.0	3.0	5.5	5.5	5.5	8.5	8.0	8.0	12.0	11.5	11.5
29	---	---	---	5.5	5.5	5.5	8.5	8.5	8.5	11.5	11.5	11.5
30	---	---	---	6.0	5.5	5.5	9.0	8.5	8.5	11.5	11.0	11.5
31	---	---	---	6.0	5.5	5.5	---	---	---	12.0	11.5	11.5
MONTH	3.0	2.0	2.5	6.0	2.5	4.0	9.0	5.5	6.5	12.0	8.5	10.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.5	12.0	12.0	---	---	---	18.5	18.5	18.5	19.0	18.5	18.5
2	12.5	12.0	12.5	---	---	---	19.0	18.5	18.5	19.0	18.5	19.0
3	13.0	12.5	13.0	---	---	---	19.0	18.5	19.0	19.0	19.0	19.0
4	13.5	13.0	13.0	---	---	---	19.5	19.0	19.0	19.0	19.0	19.0
5	---	---	---	---	---	---	19.5	19.0	19.0	19.0	18.5	19.0
6	---	---	---	---	---	---	19.5	19.0	19.0	19.0	19.0	19.0
7	---	---	---	---	---	---	19.5	19.0	19.0	19.0	18.5	18.5
8	---	---	---	---	---	---	19.5	19.0	19.5	18.5	18.5	18.5
9	---	---	---	---	---	---	20.0	19.5	19.5	18.5	18.0	18.5
10	---	---	---	---	---	---	20.0	19.5	19.5	18.5	18.0	18.0
11	---	---	---	16.5	16.0	16.0	19.5	19.5	19.5	18.5	18.0	18.0
12	---	---	---	16.5	16.0	16.0	19.5	19.0	19.5	18.0	18.0	18.0
13	---	---	---	16.5	16.0	16.0	19.0	19.0	19.0	18.5	18.0	18.0
14	---	---	---	16.5	16.0	16.5	19.0	18.5	18.5	18.5	18.5	18.5
15	---	---	---	16.5	16.5	16.5	19.0	18.5	18.5	18.5	18.0	18.5
16	---	---	---	16.5	16.0	16.5	18.5	18.0	18.5	18.5	18.0	18.0
17	---	---	---	16.5	16.0	16.0	18.0	18.0	18.0	18.0	17.5	18.0
18	---	---	---	16.5	16.0	16.5	18.5	18.0	18.0	17.5	17.0	17.5
19	---	---	---	17.0	16.5	16.5	18.5	18.0	18.0	17.5	17.0	17.5
20	---	---	---	17.0	16.5	17.0	18.0	18.0	18.0	18.0	17.5	17.5
21	---	---	---	17.5	17.0	17.0	18.5	18.0	18.0	18.0	17.5	17.5
22	---	---	---	17.5	17.5	17.5	18.5	18.5	18.5	17.5	17.5	17.5
23	---	---	---	18.0	17.5	18.0	18.5	18.0	18.5	17.5	17.5	17.5
24	---	---	---	18.0	18.0	18.0	18.5	18.0	18.5	17.5	17.5	17.5
25	---	---	---	18.0	18.0	18.0	18.5	18.0	18.0	17.5	17.5	17.5
26	---	---	---	18.0	18.0	18.0	18.5	18.0	18.5	18.0	17.5	17.5
27	---	---	---	18.0	17.5	18.0	18.5	18.0	18.5	18.0	17.5	17.5
28	---	---	---	18.5	18.0	18.0	19.0	18.5	18.5	17.5	17.5	17.5
29	---	---	---	18.5	18.0	18.0	19.0	18.5	18.5	17.5	17.0	17.5
30	---	---	---	19.0	18.0	18.5	19.0	18.5	18.5	17.5	17.5	17.5
31	---	---	---	18.5	18.5	18.5	19.0	18.5	18.5	---	---	---
MONTH	13.5	12.0	12.5	19.0	16.0	17.0	20.0	18.0	18.5	19.0	17.0	18.0
YEAR	20.0	2.0	10.0									

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	MAR 27,78	MAY 17,78	JUN 1,78	JUL 11,78
TIME	1100	1200	1330	1200
TOTAL CELLS/ML	5300	15000	19000	3300
DIVERSITY: DIVISION	0.9	0.5	0.3	0.6
.CLASS	0.9	0.5	0.3	0.6
..ORDER	1.6	1.3	0.9	1.5
...FAMILY	1.8	1.4	1.0	2.1
....GENUS	2.2	1.5	1.1	3.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...MICRACTINIACEAE								
....GOLENKINIA	*	0	--	-	99	1	--	-
....MICRACTINIUM	--	-	--	-	200	1	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	230	4	130	1	250	1	44	1
....KIRCHNERIELLA	--	-	--	-	--	-	22	1
....OOCYSTIS	--	-	--	-	--	-	89	3
....TETRAEDRON	--	-	--	-	--	-	22	1
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	--	-	99	1	180	5
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	*	0	*	0	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	470	9	130	1	170	1	490	15
....MELOSIRA	880#	17	9800#	67	16000#	82	980#	30
....STEPHANODISCUS	--	-	--	-	--	-	67	2
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	22	1
....COCCONEIS	--	-	--	-	*	0	--	-
...CYMBELLACEAE								
....CYMBELLA	*	0	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	--	-	22	1
...FRAGILARIACEAE								
....ASTERIONELLA	2700#	51	2900#	20	1500	8	870#	26
....FRAGILARIA	160	3	--	-	--	-	130	4
....SYNEDRA	*	0	130	1	--	-	44	1
...NAVICULACEAE								
....NAVICULA	*	0	130	1	--	-	44	1
...NITZSCHIACEAE								
....NITZSCHIA	33	1	94	1	920	5	89	3
...TABELLARIACEAE								
....TABELLARIA	--	-	160	1	--	-	160	5
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	--	-	*	0	*	0	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONIDALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	82	2	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	970	7	150	1	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	650	12	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	*	0	--	-	44	1

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

Additional phytoplankton data available from District office in Tacoma.

DATE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	LENGTH OF EXPO-SURE (DAYS)
SEP , 1978						
05...	1300	3.46	4.96	8.81	.000	28

12473520 COLUMBIA RIVER AT RICHLAND, WA

LOCATION.--Lat 46°18'46", long 119°15'28", in NW¼NW¼ sec.36, T.10 N., R.28 E., Benton County, Hydrologic Unit 17020016, at city of Richland pumping plant, 4.8 mi (7.7 km) upstream from Yakima River.

DRAINAGE AREA.--96,900 mi^2 (251,000 km^2), approximately.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1974 to current year.

INSTRUMENTATION.--Water-temperature recorder with probe located at city of Richland pumping plant pier near right bank from July 1974 until January 1977. Since January 1977, recorder probe located 200 ft (61 m) streamward from plant.

REMARKS.--Water temperatures given in the table below were checked for accuracy of representing the average in the river cross-section by obtaining four thermal load measurements between September 1974 and September 1975. These indicated variations between the monitors recorded temperature in use from July 1974 until January 1977, and the average (discharge weighted) stream temperature as follows:

Date	Time	Monitor recorded Temperature °C	Average stream temperature (Discharge weighted) °C	Error in Monitor Record
Sept. 11, 1974	1400	18.9	18.3	+.06
Nov. 15	1115	11.4	11.5	-0.1
Apr. 8, 1975	1130	5.5	5.0	+0.5
Sept. 10	1130	18.8	18.7	+0.1

Probe installed January 1977 reflects mean river water temperature.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 21.5°C Aug. 17-20, 1977; minimum, 2.0°C Feb. 5, 6, 10, 21, 22, 1975, Feb. 4-8, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 20.5 °C Aug. 4-10; minimum, 2.5°C Feb. 2-8, 10, 12, 14-26, Mar. 2-6.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	17.0	16.5	17.0	13.5	13.5	13.5	9.0	8.5	8.5	4.5	3.5	4.0
2	16.5	16.0	16.5	13.5	13.0	13.5	9.0	9.0	9.0	3.5	3.0	3.0
3	16.5	16.0	16.0	13.0	12.5	13.0	9.0	9.0	9.0	3.5	3.0	3.5
4	16.0	15.5	16.0	13.0	12.5	12.5	9.0	8.5	8.5	3.5	3.5	3.5
5	16.0	15.5	15.5	12.5	12.5	12.5	8.5	8.0	8.5	3.5	3.5	3.5
6	16.0	15.5	15.5	12.5	12.0	12.0	8.5	8.5	8.5	3.5	3.5	3.5
7	16.0	15.5	16.0	12.0	11.5	12.0	8.5	8.0	8.0	3.5	3.5	3.5
8	16.0	16.0	16.0	11.5	11.0	11.5	8.0	7.5	7.5	3.5	3.5	3.5
9	16.0	15.5	16.0	11.5	11.0	11.0	7.5	7.0	7.0	4.0	3.5	4.0
10	16.0	15.5	15.5	11.0	11.0	11.0	7.0	6.5	6.5	4.0	4.0	4.0
11	15.5	15.0	15.5	11.0	11.0	11.0	7.0	6.5	7.0	4.0	4.0	4.0
12	15.5	15.0	15.5	11.0	11.0	11.0	7.0	7.0	7.0	4.5	4.0	4.0
13	16.0	15.5	16.0	11.5	11.0	11.5	7.5	7.0	7.5	4.5	4.0	4.5
14	16.0	15.5	16.0	11.5	11.0	11.0	7.5	7.5	7.5	4.5	4.5	4.5
15	16.0	15.5	15.5	11.0	11.0	11.0	7.5	7.0	7.0	4.5	4.5	4.5
16	16.0	15.5	16.0	11.0	10.5	10.5	6.5	6.5	6.5	5.0	4.5	5.0
17	16.0	15.5	15.5	10.5	10.0	10.0	6.5	6.5	6.5	5.0	5.0	5.0
18	15.5	15.0	15.0	10.0	9.5	9.5	6.5	6.0	6.5	5.0	5.0	5.0
19	15.5	15.5	15.5	9.5	8.5	9.0	6.0	6.0	6.0	5.0	5.0	5.0
20	15.5	15.0	15.5	8.5	8.5	8.5	6.0	6.0	6.0	5.0	5.0	5.0
21	15.5	15.0	15.0	8.5	8.0	8.0	6.0	6.0	6.0	5.0	5.0	5.0
22	15.5	15.0	15.0	8.5	8.0	8.0	6.0	5.5	6.0	5.0	4.5	4.5
23	15.5	15.0	15.0	8.5	8.5	8.5	5.5	5.5	5.5	4.5	4.5	4.5
24	15.5	15.0	15.0	8.5	8.5	8.5	5.5	5.5	5.5	4.5	4.0	4.5
25	15.0	14.5	15.0	9.0	8.5	8.5	5.5	5.0	5.5	4.5	4.5	4.5
26	15.0	14.5	14.5	9.0	8.5	8.5	5.0	4.5	5.0	4.5	4.0	4.5
27	14.5	14.0	14.5	9.0	9.0	9.0	4.5	4.5	4.5	4.0	4.0	4.0
28	14.5	14.0	14.0	9.0	9.0	9.0	5.0	5.0	5.0	4.0	4.0	4.0
29	14.5	14.0	14.5	9.0	9.0	9.0	5.0	5.0	5.0	4.0	4.0	4.0
30	14.5	14.0	14.0	9.0	8.5	8.5	5.0	5.0	5.0	4.0	3.5	3.5
31	13.5	13.5	13.5	---	---	---	5.0	4.5	4.5	3.5	3.0	3.0
MONTH	17.0	13.5	15.5	13.5	8.0	10.5	9.0	4.5	6.5	5.0	3.0	4.0

12473520 COLUMBIA RIVER AT RICHLAND, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3.0	3.0	3.0	3.5	3.0	3.0	6.5	6.0	6.0	10.0	9.0	9.5
2	3.0	2.5	2.5	3.0	2.5	3.0	6.5	6.0	6.0	10.5	9.0	10.0
3	3.0	2.5	3.0	3.0	2.5	2.5	7.0	6.0	6.5	10.0	9.5	10.0
4	3.0	2.5	2.5	3.0	2.5	2.5	6.5	6.0	6.5	10.0	9.0	9.5
5	2.5	2.5	2.5	3.0	2.5	2.5	6.5	6.0	6.5	10.0	9.0	9.5
6	3.0	2.5	3.0	3.5	2.5	3.0	6.5	6.0	6.5	10.5	9.0	10.0
7	3.0	2.5	3.0	3.5	3.0	3.0	6.5	6.0	6.0	11.0	10.0	10.5
8	3.0	2.5	3.0	3.5	3.0	3.5	6.5	6.0	6.5	11.0	10.5	11.0
9	3.5	3.0	3.0	4.0	3.5	3.5	7.0	6.0	6.5	11.0	10.5	10.5
10	3.0	2.5	3.0	4.0	3.5	4.0	7.0	6.5	7.0	10.5	10.0	10.5
11	3.0	3.0	3.0	4.0	3.5	4.0	7.0	6.5	7.0	11.0	10.0	10.5
12	3.0	2.5	2.5	4.5	4.0	4.0	7.5	6.5	7.0	10.5	10.0	10.5
13	3.0	3.0	3.0	5.0	4.5	4.5	7.5	6.5	7.0	11.0	10.0	10.5
14	3.0	2.5	3.0	4.5	4.0	4.0	7.5	6.5	7.0	11.0	10.5	10.5
15	3.0	2.5	3.0	4.5	4.0	4.5	8.0	7.0	7.5	11.0	10.5	11.0
16	3.0	2.5	3.0	5.0	4.5	4.5	7.5	7.0	7.0	11.0	10.0	10.5
17	3.0	2.5	2.5	5.0	4.5	5.0	8.0	7.0	7.5	11.5	10.5	11.0
18	2.5	2.5	2.5	5.5	5.0	5.0	8.0	7.0	7.5	11.5	10.5	11.0
19	2.5	2.5	2.5	5.5	5.5	5.5	8.0	7.5	8.0	12.5	11.0	11.5
20	3.0	2.5	3.0	6.0	5.5	5.5	8.0	7.0	7.5	12.5	11.5	12.0
21	3.0	2.5	2.5	6.0	5.5	5.5	8.0	7.0	7.5	12.5	11.5	12.0
22	2.5	2.5	2.5	6.5	5.5	6.0	7.5	7.0	7.5	12.5	11.5	12.0
23	3.0	2.5	2.5	6.0	5.5	5.5	8.0	7.0	7.5	12.5	11.5	12.0
24	3.0	2.5	2.5	6.0	5.0	5.5	8.5	7.5	8.0	12.0	11.5	12.0
25	3.0	2.5	2.5	6.0	5.5	5.5	8.5	8.0	8.5	12.5	11.0	12.0
26	3.0	2.5	3.0	6.5	5.5	6.0	8.5	8.0	8.5	12.0	11.5	12.0
27	3.0	3.0	3.0	6.5	6.0	6.5	8.5	8.5	8.5	12.5	11.5	12.0
28	3.0	3.0	3.0	6.5	6.0	6.5	9.0	8.5	8.5	12.5	11.5	12.0
29	---	---	---	6.5	6.0	6.5	9.5	8.5	9.0	12.5	11.5	12.0
30	---	---	---	7.0	6.0	6.5	10.0	9.0	9.5	12.5	11.0	12.0
31	---	---	---	6.5	6.0	6.5	---	---	---	13.0	11.5	12.0
MONTH	3.5	2.5	3.0	7.0	2.5	4.5	10.0	6.0	7.5	13.0	9.0	11.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.5	12.0	12.5	16.5	16.0	16.5	19.5	18.5	19.0	19.5	18.5	19.0
2	13.5	12.5	13.0	17.0	16.0	16.5	19.5	18.5	19.0	20.0	19.0	19.5
3	14.5	13.0	13.5	17.0	16.5	17.0	20.0	19.0	19.5	20.0	19.5	20.0
4	15.0	14.0	14.5	17.0	16.0	16.5	20.5	19.5	20.0	20.0	19.5	19.5
5	15.0	14.0	14.5	17.5	16.5	16.5	20.5	20.0	20.5	19.5	19.0	19.0
6	15.0	14.0	14.5	17.5	16.5	17.0	20.5	19.5	20.0	19.5	19.0	19.0
7	15.0	14.0	14.5	17.5	16.5	17.0	20.5	19.5	20.0	19.0	18.0	18.5
8	15.0	14.0	14.5	18.0	17.0	17.5	20.5	19.5	20.0	18.5	18.0	18.0
9	14.5	14.0	14.5	18.0	17.0	17.5	20.5	19.5	20.0	18.5	18.0	18.0
10	14.5	14.0	14.0	17.5	16.5	17.0	20.5	19.5	20.0	18.5	17.5	18.0
11	15.0	14.0	14.5	17.5	16.5	17.0	20.0	19.5	20.0	18.5	17.5	18.0
12	14.5	14.0	14.0	17.5	16.5	17.0	20.0	19.0	19.5	18.5	17.5	18.0
13	14.5	13.5	14.0	17.5	16.5	17.0	19.5	19.0	19.0	18.0	17.5	18.0
14	14.5	13.5	14.0	17.5	16.5	17.0	19.5	19.0	19.0	18.5	18.0	18.5
15	14.5	13.5	14.0	17.5	16.5	17.0	---	---	---	18.5	18.0	18.5
16	14.5	13.5	14.0	17.5	16.5	17.0	---	---	---	18.0	17.5	18.0
17	15.0	14.0	14.5	17.0	16.0	16.5	---	---	---	18.0	17.5	17.5
18	15.0	14.0	14.5	17.5	16.5	17.0	---	---	---	17.5	17.0	17.0
19	15.0	14.5	15.0	17.5	17.0	17.0	---	---	---	18.0	17.0	17.5
20	15.5	14.0	14.5	18.0	17.0	17.5	---	---	---	18.0	17.0	17.5
21	15.5	14.5	15.0	18.5	17.0	17.5	19.0	18.5	19.0	18.0	17.5	17.5
22	16.0	14.5	15.5	18.5	17.5	18.0	19.0	18.5	18.5	17.5	17.0	17.0
23	16.0	15.0	15.5	19.0	18.0	18.5	19.0	18.0	18.5	18.0	17.0	17.5
24	15.5	15.0	15.0	19.0	18.0	18.5	19.0	18.5	18.5	18.0	17.5	18.0
25	15.5	15.0	15.0	19.0	18.5	19.0	19.0	18.5	18.5	18.5	17.5	18.0
26	16.5	15.0	15.5	19.0	18.0	18.5	19.0	18.5	18.5	18.5	18.0	18.0
27	16.5	15.5	16.0	19.0	18.0	18.5	19.5	18.5	19.0	18.5	18.0	18.0
28	17.0	16.0	16.5	19.0	18.5	18.5	20.0	19.0	19.5	18.0	17.5	18.0
29	17.0	16.0	16.5	19.5	18.5	19.0	20.0	19.0	19.5	18.0	17.5	17.5
30	17.0	16.0	16.5	19.5	18.5	19.0	20.0	19.0	19.0	18.0	17.0	17.5
31	---	---	---	19.5	18.5	19.0	19.0	19.0	19.0	---	---	---
MONTH	17.0	12.0	14.5	19.5	16.0	17.5	20.5	18.0	19.5	20.0	17.0	18.0
YEAR	20.5	2.5	11.0									

12473740 EL 68-D WASTEWAY NEAR OTHELLO, WA

LOCATION.--Lat 46°43'47", long 119°02'56", in NE¼SE¼ sec.4, T.14 N., R.30 E., Franklin County, Hydrologic Unit 17020016, at State Highway 17, 400 ft (122 m) upstream from entrance to the Potholes Canal, 1.3 mi (2.1 km) upstream from entrance to Scootenay Reservoir, and 9.2 mi (14.8 km) southeast of Othello.

DRAINAGE AREA.--121 mi^2 313 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March to September 1978.

GAGE.--Dual water-stage recorders and automatic water-quality sampler. Datum 935 ft (285 m) from topographic map.

REMARKS.--Water-discharge records excellent. To obtain comparable records of water flow and water-quality data, all daily values have been computed with the day beginning at 0900 hours. Flow from irrigation waste and ground-water returns. Discharge controlled to some extent by upstream catchment basins. Flow used for downstream irrigation.

COOPERATION.--Water-quality observer furnished by South Columbia Irrigation District.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 282 ft^3/s (7.99 m^3/s) July 2, gage height, 6.11 ft (1.862 m); minimum daily, 22 ft^3/s (0.62 m^3/s) Mar. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						25	60	96	167	246	229	175
2						25	60	92	164	270	222	178
3						25	60	95	155	262	220	181
4						24	58	99	159	238	225	178
5						24	58	103	160	210	225	176
6						24	58	102	162	198	229	176
7						25	68	99	172	184	228	175
8						25	72	101	177	177	223	174
9						25	73	109	193	179	225	171
10						25	77	124	204	181	234	163
11						25	75	141	200	194	243	160
12						24	84	148	184	204	250	152
13						24	89	160	212	197	264	149
14						23	83	161	219	197	263	143
15						23	91	168	227	201	269	139
16						23	102	156	218	217	278	143
17						24	109	140	205	226	241	146
18						24	104	139	198	222	221	140
19						23	101	147	192	223	206	133
20						22	92	144	191	221	209	139
21						23	75	138	188	223	209	144
22						41	83	140	191	219	236	144
23						30	91	144	192	221	227	142
24						29	92	137	208	216	186	142
25						50	94	142	217	214	166	139
26						50	116	150	195	217	158	124
27						50	106	159	180	228	150	116
28						51	101	159	168	231	147	118
29						53	100	160	174	231	158	121
30						55	100	164	188	223	166	122
31						58	---	163	---	227	176	---
TOTAL	---	---	---	---	---	972	2532	4180	5660	6697	6683	4503
MEAN	---	---	---	---	---	31.4	84.4	135	189	216	216	150
MAX	---	---	---	---	---	58	116	168	227	270	278	181
MIN	---	---	---	---	---	22	58	92	155	177	147	116
AC-FT	---	---	---	---	---	1930	5020	8290	11230	13280	13260	8930

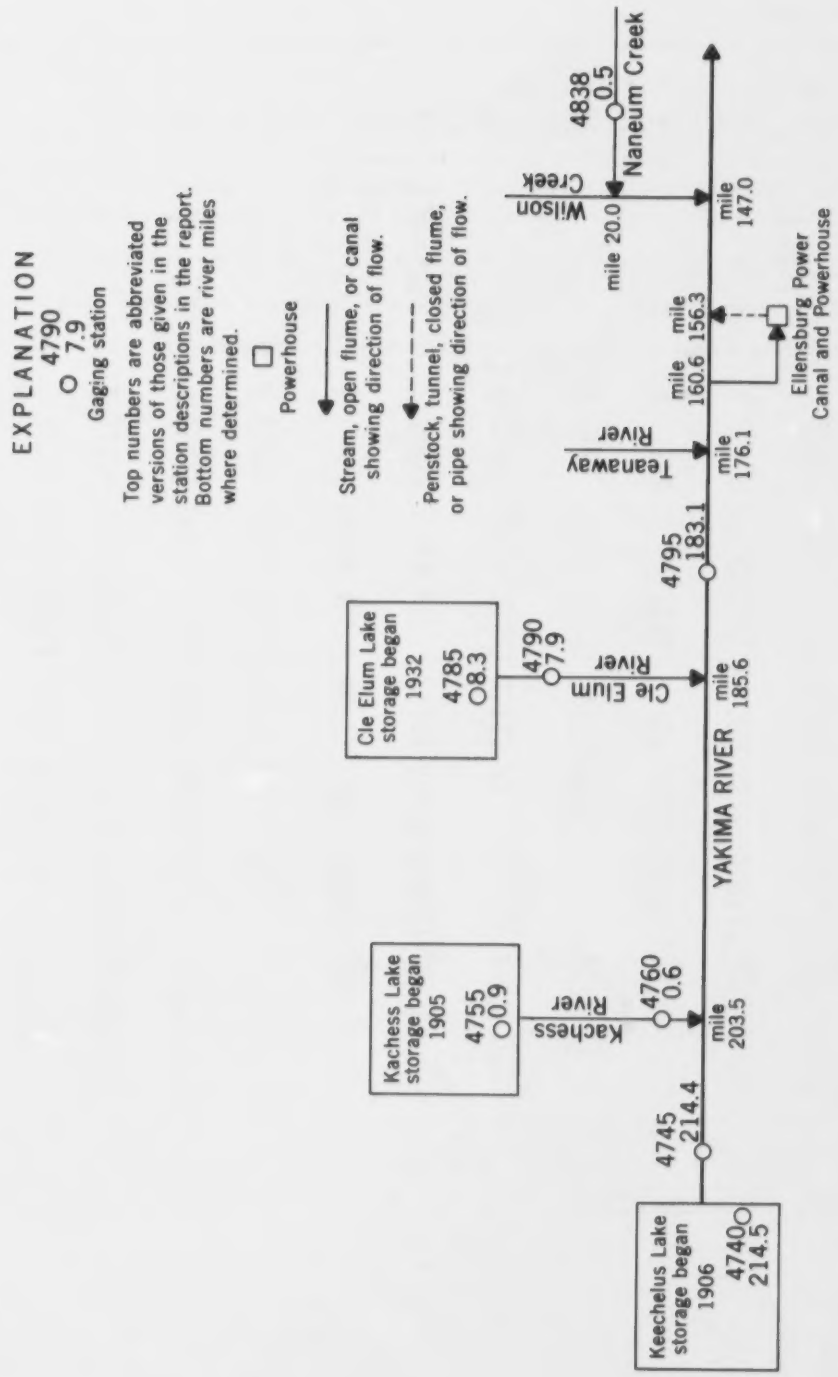

Figure 14. Gaging stations in Yakima River basin between Keechelus Lake and Naneum Creek.

12474500 YAKIMA RIVER NEAR MARTIN, WA

LOCATION.--Lat 47°19'17", long 121°20'06", in SW¼SW¼ sec.10, T.21 N., R.12 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, on left bank 800 ft (244 m) downstream from dam at outlet of Keechelus Lake, 2.9 mi (4.7 km) northwest of Martin, 9.5 mi (15.3 km) northwest of Easton, and at mile 214.4 (345.0 km).

DRAINAGE AREA.--54.7 mi^2 (141.7 km^2).

PERIOD OF RECORD.--October 1903 to current year. Prior to February 1904 monthly discharge only, published in WSP 1316.

REVISED RECORDS.--WSP 1286: 1910. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,422.40 ft (738.348 m) Bureau of Reclamation datum. Prior to July 20, 1923, nonrecording gages at several sites within 2 mi (3 km) of present site at various datums.

REMARKS.--Flow completely regulated by Keechelus Lake. No diversion above station.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--75 years, 338 ft^3/s (9.572 m^3/s), 244,900 acre-ft/yr (302 hm^3/yr), adjusted for storage since January 1906.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,370 ft^3/s (209 m^3/s) Mar. 26, 1915, when temporary crib dam was washed out; practically no flow when gates in Keechelus Lake Dam are closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,220 ft^3/s (62.9 m^3/s) July 31, gage height, 10.67 ft (3.252 m); minimum, 1.0 ft^3/s (0.028 m^3/s) Oct. 5-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	4.0	12	4.0	3.0	4.0	903	247	507	512	1510	661
2	2.0	5.0	25	4.0	3.0	4.0	902	247	567	512	666	657
3	2.0	3.0	17	4.0	3.0	4.0	898	248	630	512	686	654
4	2.0	3.0	11	4.0	3.0	4.0	897	249	733	511	800	649
5	1.0	2.0	9.0	4.0	3.0	4.0	896	249	911	510	824	645
6	1.0	2.0	9.0	4.0	3.0	4.0	893	249	832	510	819	640
7	1.0	3.0	9.0	4.0	4.0	4.0	891	249	759	509	815	636
8	1.0	2.0	8.0	4.0	4.0	4.0	888	249	699	507	811	631
9	1.0	2.0	8.0	4.0	4.0	4.0	885	250	654	507	826	627
10	1.0	2.0	7.0	4.0	4.0	4.0	882	250	610	506	836	624
11	1.0	3.0	11	4.0	4.0	4.0	881	250	569	540	832	620
12	1.0	3.0	12	4.0	4.0	5.0	878	320	529	570	827	575
13	1.0	3.0	14	4.0	4.0	5.0	593	488	553	568	822	545
14	1.0	5.0	15	4.0	4.0	5.0	359	675	541	599	817	542
15	1.0	5.0	13	4.0	4.0	5.0	359	843	497	620	813	539
16	1.0	4.0	12	4.0	4.0	5.0	359	830	458	618	807	535
17	1.0	4.0	10	4.0	4.0	5.0	359	818	417	664	803	531
18	1.0	3.0	9.0	4.0	3.0	5.0	284	708	403	706	798	529
19	1.0	3.0	9.0	4.0	4.0	5.0	356	708	469	704	793	525
20	1.0	3.0	8.0	4.0	4.0	6.0	356	770	518	702	787	521
21	1.0	2.0	8.0	3.0	4.0	7.0	356	831	518	723	782	518
22	1.0	2.0	7.0	3.0	4.0	9.0	356	844	517	741	778	515
23	1.0	2.0	7.0	3.0	4.0	100	356	708	517	738	772	515
24	1.0	2.0	6.0	3.0	4.0	325	313	597	517	736	767	515
25	1.0	5.0	6.0	3.0	4.0	541	244	507	517	733	761	512
26	1.0	9.0	6.0	3.0	4.0	710	245	507	515	753	757	310
27	1.0	7.0	5.0	3.0	4.0	867	245	517	515	784	751	36
28	1.0	4.0	5.0	3.0	4.0	1280	246	518	515	781	722	17
29	1.0	11	5.0	3.0	---	1240	247	528	515	778	672	2.0
30	1.0	7.0	5.0	3.0	---	1050	247	533	514	774	669	2.0
31	1.0	---	4.0	3.0	---	939	---	527	---	1630	664	---
TOTAL	35.0	119.0	292.0	113.0	105.0	7158.0	16574	15514	17016	20558	24787	14828.0
MEAN	1.13	3.97	9.42	3.65	3.75	231	552	500	567	663	800	494
MAX	2.0	11	25	4.0	4.0	1280	903	844	911	1630	1510	661
MIN	1.0	2.0	4.0	3.0	3.0	4.0	244	247	403	506	664	2.0
AC-FT	69	236	579	224	208	14200	32870	30770	33750	40780	49170	29410
†	+6,460	+44,990	+61,470	+8,560	+8,900	+9,150	-6,490	+7,680	-5,660	-32,590	-45,110	-19,590
MEAN†	106	760	1,009	143	164	380	443	625	472	133	65.8	105
CFSM‡	1.94	13.9	18.4	2.61	3.00	6.95	8.10	11.4	8.63	2.43	1.20	3.02
IN†	2.23	15.51	21.27	3.01	3.12	8.01	9.04	13.18	9.63	2.80	1.39	3.37
AC-FT‡	6,529	45,226	62,049	8,784	9,108	23,346	26,385	38,452	28,091	8,179	4,049	9,021

CAL YR 1977: TOTAL 76,845.00 MEAN 211 MAX 1,720 MIN .00 AC-FT 152,400
DO.....: MEAN‡ 329 CFSM‡ 6.01 IN‡ 81.67 AC-FT‡ 238,368
WTR YR 1978: TOTAL 117,099.00 MEAN 321 MAX 1,630 MIN 1.0 AC-FT 232,300
DO.....: MEAN‡ 373 CFSM‡ 6.82 IN‡ 92.59 AC-FT‡ 270,020

† Change in contents, in acre-feet, in Keechelus Lake.
‡ Adjusted for change in contents in Keechelus Lake.

12476000 KACHESS RIVER NEAR EASTON, WA

LOCATION.--Lat 47°15'41", long 121°12'08", on north line sec.3, T.20 N., R.13 E., Kittitas County, Hydrologic Unit 17030001, on left bank 0.3 mi (0.5 km) downstream from Kachess Lake, 2.0 mi (3.2 km) northwest of Easton, and at mile 0.6 (1.0 km).

DRAINAGE AREA.--63.6 mi^2 (164.7 km^2)

PERIOD OF RECORD.--October 1903 to current year.

REVISED RECORDS.--WSP 369: 1904, 1907-8. WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,188.10 ft (666.933 m) Bureau of Reclamation datum. Prior to July 22, 1913, nonrecording gage and July 22, 1913, to Aug. 14, 1916, water-stage recorder, at site 0.2 mi (0.3 km) upstream at different datum. Aug. 15, 1916, to Oct. 8, 1927, water-stage recorder at site 0.5 mi (0.8 km) downstream at different datum. Oct. 9, 1927, to Oct. 30, 1951, water-stage recorder at present site at datum 1.33 ft (0.405 m) higher.

REMARKS.- Flow completely regulated by Kachess Lake.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--75 years, 294 ft^3/s (8.326 m^3/s), 213,000 acre-ft/yr (263 hm^3/yr), adjusted for storage since October 1905.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,060 ft^3/s (86.7 m^3/s) Apr. 10, 1972, gage height, 8.57 ft (2.612 m); no flow at times when gates in dam are closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,730 ft^3/s (49.0 m^3/s) July 31, gage height, 7.09 ft (2.161 m); minimum, 1.4 ft^3/s (0.040 m^3/s) Oct. 1-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	6.0	16	3.0	2.0	2.0	4.0	161	446	539	978	393
2	1.0	7.0	39	3.0	2.0	2.0	4.0	262	478	534	391	391
3	2.0	5.0	20	3.0	2.0	2.0	4.0	263	507	517	391	391
4	2.0	4.0	11	3.0	2.0	2.0	4.0	303	521	504	390	391
5	2.0	4.0	7.0	3.0	2.0	2.0	4.0	323	665	499	387	362
6	2.0	4.0	6.0	3.0	2.0	2.0	4.0	324	737	494	387	337
7	2.0	5.0	6.0	2.0	2.0	2.0	4.0	326	734	524	415	287
8	2.0	5.0	5.0	2.0	2.0	2.0	4.0	327	730	548	435	216
9	2.0	5.0	4.0	2.0	2.0	2.0	4.0	364	707	540	435	216
10	2.0	6.0	4.0	2.0	2.0	2.0	4.0	436	686	531	435	216
11	2.0	6.0	5.0	2.0	2.0	2.0	4.0	464	683	521	434	216
12	2.0	6.0	7.0	2.0	2.0	2.0	4.0	494	568	513	431	216
13	2.0	6.0	10	2.0	2.0	3.0	3.0	514	491	505	431	216
14	3.0	9.0	11	2.0	2.0	3.0	4.0	547	491	497	431	216
15	3.0	10	9.0	2.0	2.0	3.0	4.0	595	490	488	431	216
16	3.0	9.0	8.0	2.0	2.0	3.0	4.0	596	487	481	431	216
17	3.0	7.0	6.0	2.0	2.0	3.0	156	572	486	471	429	216
18	3.0	5.0	5.0	2.0	2.0	3.0	213	562	467	462	428	217
19	3.0	4.0	4.0	2.0	2.0	3.0	193	563	447	454	427	218
20	3.0	4.0	4.0	2.0	2.0	3.0	193	586	447	446	427	216
21	3.0	3.0	3.0	2.0	2.0	3.0	193	600	428	438	427	216
22	4.0	3.0	3.0	2.0	2.0	4.0	193	632	485	428	427	230
23	4.0	3.0	3.0	2.0	2.0	4.0	193	650	509	419	427	258
24	4.0	3.0	3.0	2.0	2.0	4.0	99	608	505	458	410	258
25	4.0	8.0	3.0	2.0	2.0	6.0	35	560	502	481	398	257
26	4.0	10	3.0	2.0	2.0	5.0	35	496	499	466	396	462
27	4.0	8.0	3.0	2.0	2.0	5.0	36	463	531	452	395	820
28	4.0	9.0	3.0	2.0	2.0	5.0	35	446	551	436	395	818
29	4.0	14	3.0	2.0	---	5.0	35	445	548	422	395	817
30	5.0	8.0	3.0	2.0	---	5.0	35	442	544	405	395	815
31	4.0	---	3.0	2.0	---	4.0	---	443	---	979	395	---
TOTAL	89.0	186.0	220.0	68.0	56.0	98.0	1707.0	14367	16370	15452	13404	10314
MEAN	2.87	6.20	7.10	2.19	2.00	3.16	56.9	463	546	498	432	344
MAX	5.0	14	39	3.0	2.0	6.0	213	650	737	979	978	820
MIN	1.0	3.0	3.0	2.0	2.0	2.0	3.0	161	428	405	387	216
AC-FT	177	369	436	135	111	194	3390	28500	32470	30650	26590	20460
†	+4,810	+34,050	+57,610	+9,470	+7,690	+21,190	+20,700	+4,450	-5,260	-23,540	-24,420	-16,460
MEAN‡	81.1	578	944	156	140	348	405	536	457	116	35.2	67.2
CFSM‡	1.28	9.09	14.84	2.46	2.21	5.47	6.36	8.42	7.19	1.82	0.55	1.06
IN‡	1.47	10.14	17.12	2.83	2.29	6.31	7.11	9.72	8.02	2.10	0.64	1.18
AC-FT‡	4,987	34,419	58,046	9,605	7,801	21,384	24,086	32,947	27,210	7,109	2,167	3,996

CAL YR 1977: TOTAL 98,583.1 MEAN 270 MAX 1,960 MIN 1.0 AC-FT 195,500
DO.....: MEAN‡ 273 CFSM‡4.29 IN‡ 58.28 AC-FT‡ 197,432
WTR YR 1978: TOTAL 72,331.0 MEAN 198 MAX 979 MIN 1.0 AC-FT 143,500
DO.....: MEAN‡ 323 CFSM‡5.08 IN‡ 68.96 AC-FT‡ 233,759

† Change in contents, in acre-feet, in Kachess Lake.
‡ Adjusted for change in contents in Kachess Lake.

12479000 CLE ELUM RIVER NEAR ROSLYN, WA

LOCATION.--Lat 47°14'41", long 121°04'00", in NW¼NW¼ sec.11, T.20 N., R.14 E., Kittitas County, Hydrologic Unit 17030001, on left bank 0.3 mi (0.5 km) downstream from dam at Cle Elum Lake, 3.4 mi (5.5 km) northwest of Roslyn, and at mile 7.9 (12.7 km).

DRAINAGE AREA.--203 mi^2 (526 km^2).

PERIOD OF RECORD.--October 1903 to current year.

REVISED RECORDS.--WSP 369: 1906-8. WSP 1216: Drainage area. WSP 1286: 1908-9. WSP 1316: 1904.

GAGE.--Water-stage recorder. Datum of gage is 2,102.10 ft (640.720 m) Bureau of Reclamation datum. Prior to Oct. 14, 1913, and Sept. 4, 1931, to Apr. 19, 1933, several nonrecording gages and Oct. 14, 1913, to Sept. 3, 1931, water-stage recorder, at about same sites at same datum.

REMARKS.--No diversion above station. Flow regulated by Cle Elum Lake 0.3 mi (0.5 km) upstream.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--75 years, 934 ft^3/s (26.45 m^3/s) 676,900 acre-ft/yr (835 hm^3/yr), adjust ed for storage since 1906.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,700 ft^3/s (530 m^3/s) Nov. 15, 1906, gage height, 14.05 ft (4.282 m); no flow at times when gates in dam are closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,750 ft^3/s (135 m^3/s) June 6, gage height, 10.33 ft (3.149 m); essentially no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	.00	.00	.00	37	66	75	166	1760	2090	1190	2520
2	6.0	.00	.00	.00	37	65	75	120	2110	2070	4060	2470
3	6.0	.00	.00	.00	37	65	75	120	2790	1690	4070	2420
4	5.0	.00	.00	.00	38	65	76	120	3410	1490	4020	2360
5	5.0	.00	.00	.00	39	64	76	211	4090	1490	3970	2310
6	4.0	.00	.00	.00	39	63	76	189	4380	1700	3920	2250
7	4.0	.00	.00	.00	40	63	75	176	3400	2100	3870	2190
8	3.0	.00	.00	.00	41	63	75	164	3080	2220	3820	2140
9	2.0	.00	.00	.00	41	62	76	157	3070	2200	3760	2080
10	2.0	.00	.00	15	42	63	76	148	2990	2320	3710	2020
11	2.0	.00	.00	34	43	63	76	144	2850	2460	3660	1960
12	2.0	.00	.00	35	45	63	77	143	1990	2630	3610	1900
13	2.0	.00	.00	36	46	64	77	140	1810	2910	3560	1840
14	2.0	.00	.00	36	48	64	77	133	1800	3050	3510	1780
15	2.0	.00	.00	36	50	64	78	124	2150	2950	3460	1720
16	.00	.00	.00	36	52	65	78	119	3020	2840	3410	1660
17	.00	.00	.00	36	54	65	384	120	3400	2990	3360	1590
18	.00	.00	.00	36	57	65	590	123	3330	3100	3310	1530
19	.00	.00	.00	36	60	66	586	135	3430	3090	3250	1460
20	.00	.00	.00	36	62	66	585	1180	3260	3420	3200	1390
21	.00	.00	.00	36	64	67	478	2820	1990	3580	3140	1330
22	.00	.00	.00	36	66	67	289	3170	2730	3550	3080	1270
23	.00	.00	.00	36	67	68	305	2670	3320	3520	3030	1220
24	.00	.00	.00	36	67	69	265	1770	3570	3610	2980	1190
25	.00	.00	.00	37	68	70	258	1600	3520	3640	2930	1160
26	.00	.00	.00	36	68	70	257	1570	2500	3610	2870	1110
27	.00	.00	.00	37	68	71	257	1450	2520	3580	2820	1060
28	.00	.00	.00	37	67	72	257	1380	2490	3550	2760	1010
29	.00	.00	.00	37	---	73	258	1430	2480	3530	2710	963
30	.00	.00	.00	37	---	74	258	1860	2330	3490	2650	912
31	.00	---	.00	37	---	74	---	1860	---	3050	2590	---
TOTAL	54.00	.00	.00	774.00	1443	2059	6245	25512	85570	87520	102280	50815
MEAN	1.74	.000	.000	25.0	51.5	66.4	208	823	2852	2823	3299	1694
MAX	7.0	.00	.00	37	68	74	590	3170	4380	3640	4070	2520
MIN	.00	.00	.00	.00	37	62	75	119	1760	1490	1190	912
AC-FT	107	.00	.00	1540	2860	4080	12390	50600	169700	173600	202900	100800
†	+14,850	+71,830	+129,710	+19,200	+15,230	+53,030	+58,330	+64,790	-38,290	-119,400	-183,560	-74,710
MEAN‡	243	1,207	2,110	337	326	929	1,188	1,877	2,208	881	313	439
CFSM‡	1.20	5.95	10.39	1.66	1.60	4.58	5.85	9.25	10.88	4.34	1.54	2.16
IN‡	1.38	6.64	11.99	1.91	1.67	5.28	6.53	10.66	12.14	5.00	1.78	2.41
AC-FT‡	14,957	71,830	129,710	20,741	18,092	57,114	70,717	115,431	131,390	54,166	19,247	26,109

CAL YR 1977: TOTAL 337,880.20 MEAN 926 MAX 3,740 MIN .00 AC-FT 670,200
DO.....: MEAN‡ 770 CFSM‡ 3.79 IN‡ 51.48 AC-FT‡ 557,293
WTR YR 1978: TOTAL 362,272.00 MEAN 993 MAX 4,380 MIN .00 AC-FT 718,600
DO.....: MEAN‡ 1,008 CFSM† 4.96 IN‡ 67.42 AC-FT‡ 729,505

† Change in contents, in acre-feet, in Cle Elum Lake.
‡ Adjusted for change in contents in Cle Elum Lake.

NOTE.--Essentially no flow Oct. 16 to Jan. 9.

12479500 YAKIMA RIVER AT CLE ELUM, WA.

LOCATION.--47°11'33", long 120°56'48", in SW¼SE¼ sec.27, T.20 N., R.15 E., Kittitas County, Hydrologic Unit 17030001, on right bank 300 ft (91 m) downstream from highway bridge at Cle Elum, 0.1 mi (0.2 km) downstream from Crystal Creek (formerly Roslyn Creek), 1.3 mi (2.1 km) downstream from Tillman Creek, 7.0 mi (11.3 km) upstream from Teanaway River, and at mile 183.1 (294.6 km).

DRAINAGE AREA.--495 mi² (1,282 km²).

PERIOD OF RECORD.--August 1906 to current year. Chemical analyses February 1910 to January 1911, December 1952 to September 1956, July 1969 to September 1970. Water temperature December 1952 to September 1956.

REVISED RECORDS.--WSP 369: 1910-11. WSP 832: 1936. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,900 ft (579 m), from topographic map. Prior to July 12, 1911, June 28, 1923, to Oct. 21, 1924, Nov. 13, 1964, to Sept. 30, 1968, Oct. 1, 1969 to Sept. 1971, non-recording gage, and July 12, 1911, to June 27, 1923, Oct. 22, 1924, to Nov. 12, 1964, Oct. 1, 1968 to Sept. 30, 1969, water-stage recorder, all at various locations within 500 ft (150 m) of present site at different datums.

REMARKS.--Kittitas high-line canal diverts water from river at Easton 19.5 mi (31.4 km) upstream for irrigation below station. Several smaller diversions for irrigation of several hundred acres above station. Considerable regulation by Keechelus, Kachess, and Cle Elum Lakes.

COOPERATION.--Gaging station operated and daily discharge furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--72 years, 2,044 ft³/s (57.88 m³/s), 56.07 in/yr (1,424 mm/yr), 1,481,000 acre-ft/yr (1,830 hm³/yr), adjusted for storage since October 1906 and Kittitas Canal diversion since 1930.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,600 ft³/s (725 m³/s) Nov. 14, 1906, gage height, 12.5 ft (3.81 m) from floodmarks, datum then in use; minimum, 34 ft³/s (0.96 m³/s) Oct. 27, 28, 29, 1973, gage height, 2.57 ft (0.783 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,600 ft³/s (498 m³/s) Dec. 2, gage height, 7.76 ft (2.365 m); minimum daily, 116 ft³/s (3.29 m³/s) Oct. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	370	230	2400	486	335	406	2300	1080	2430	2300	3100	3030
2	233	684	13900	450	335	397	2100	1130	2700	2270	4590	3000
3	239	504	9230	426	329	383	1950	1120	3580	1940	4780	2940
4	232	459	4250	418	328	378	1860	1090	4440	1620	4710	2880
5	217	356	2290	400	328	375	1820	1100	5720	1580	4660	2820
6	197	335	1680	354	333	367	1740	1030	6670	1690	4600	2770
7	183	434	1500	340	342	363	1670	976	5490	2070	4520	2720
8	166	418	1420	330	364	369	1620	948	4560	2360	4430	2600
9	160	363	1310	322	391	377	1580	932	4410	2350	4320	2530
10	154	460	1220	326	402	383	1570	1000	4310	2420	4240	2470
11	149	556	1620	358	402	386	1610	1040	3980	2590	4190	2410
12	145	564	1960	362	390	387	1640	1020	2830	2780	4150	2390
13	142	554	2410	354	381	404	1610	1070	2220	3080	4080	2290
14	137	733	2480	349	371	419	1220	1340	2170	3330	4020	2210
15	136	987	2390	351	361	455	915	1640	2330	3260	4000	2160
16	134	846	2220	356	352	528	941	1660	3210	3160	3930	2130
17	130	706	1770	356	348	461	1100	1560	3850	3220	3840	2060
18	116	600	1440	356	342	412	1450	1440	3760	3460	3770	1970
19	117	540	1200	356	344	436	1490	1370	3760	3470	3720	1880
20	124	504	1030	356	359	487	1450	1990	3980	3750	3660	1770
21	123	468	918	364	369	561	1470	4050	2150	4080	3590	1700
22	121	434	845	380	380	671	1330	5220	2880	4090	3550	1640
23	124	415	786	384	395	835	1350	4640	3640	4070	3490	1620
24	125	397	743	373	409	1110	1230	3380	4090	4150	3440	1620
25	125	551	709	364	418	1470	833	2720	4050	4300	3390	1570
26	123	1260	675	358	425	1860	815	2540	2980	4280	3340	1500
27	127	1350	650	356	421	2020	1060	2290	2750	4280	3290	1590
28	127	1390	587	355	413	2110	1280	2180	2770	4200	3230	1500
29	128	2130	548	349	---	2690	1250	2240	2760	4090	3160	1420
30	133	1870	535	342	---	2650	1170	2510	2660	4010	3100	1330
31	145	---	511	336	---	2490	---	2600	---	4040	3070	---
TOTAL	4882	21098	65227	11367	10367	26640	43424	58906	107130	98290	119960	64528
MEAN	157	703	2104	367	370	859	1447	1900	3571	3171	3870	2151
MAX	370	2130	13900	486	425	2690	2300	5220	6670	4300	4780	3030
MIN	116	230	511	322	328	363	815	932	2150	1580	3070	1330
AC-FT	9680	41850	129400	22550	20560	52840	86130	116800	212500	195000	237900	128000
†	+26,120	+150,870	+248,790	+37,230	+31,820	+83,370	+72,540	+76,920	-49,210	-175,530	-253,090	-110,760
††	0	0	0	0	0	0	5,082	39,495	54,314	61,699	67,879	42,608
MEAN‡	582	3,239	6,148	972	943	2,215	2,752	3,793	3,655	1,318	857	1,005
CFSM‡	1.18	6.54	12.42	1.96	1.91	4.47	5.56	7.66	7.38	2.66	1.73	2.03
IN‡	1.36	7.30	14.32	2.26	1.98	5.16	6.20	8.84	8.24	3.07	2.00	2.27
AC-FT‡	35,803	192,720	378,019	59,776	52,383	136,190	163,740	233,198	217,519	81,066	52,670	59,804

CAL YR 1977: TOTAL 566,988 MEAN 1,553 MAX 13,900 MIN 116 AC-FT 1,125,000
DO.....: MEAN‡ 1,846 CFSM‡ 3.73 IN‡ 50.64 AC-FT‡ 1,336,392
WTR YR 1978: TOTAL 631,811 MEAN 1,731 MAX 13,900 MIN 116 AC-FT 1,253,000
DO.....: MEAN‡ 2,297 CFSM‡ 4.64 IN‡ 63.01 AC-FT‡ 1,662,894

† Change in contents, in acre-feet, for Keechelus, Kachess, and Cle Elum Lakes.
†† Diversion, in acre-feet, by Kittitas Canal.
‡ Adjusted for change in lake contents and diversion.

YAKIMA RIVER BASIN

12483800 NANEUM CREEK NEAR ELLENSBURG, WA

LOCATION.--Lat 47°07'37", long 120°28'47", in SE¼NE¼ sec.20, T.19 N., R.19 E., Kittitas County, Hydrologic Unit 17030001, on right bank 10 ft (3.0 m) upstream from intake of Ellensburg water-supply system, 9 mi (14 km) north of Ellensburg, and at mile 0.5 (0.8 km).

DRAINAGE AREA.--69.5 mi² (180.0 km²).

PERIOD OF RECORD.--March 1957 to September 1971, September 1972 to September 1978 (discontinued).

REVISED RECORDS.--WSP 1566: Drainage area. WRD Wash. 1974: 1973(M).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 2,480 ft (756 m), from topographic map.

REMARKS.--Records good except those for winter periods, which are poor. Small diversion above station for irrigation.

AVERAGE DISCHARGE.--20 years (water years 1958-71, 1973-78), 57.1 ft³/s (1.617 m³/s) 11.16 in/yr (283 mm/yr), 41,370 acre-ft/yr (51.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 968 ft³/s (27.4 m³/s) June 9, 1964, gage height, 4.08 ft (1.244 m); minimum, 3.8 ft³/s (0.11 m³/s) Aug. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (4.25 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 2	1345	*343	9.71	*2.51	0.765
Dec. 13	2000	157	4.45	1.50	.457
Mar. 30	2000	265	7.50	2.11	.643
Apr. 29	0600	265	7.50	2.11	0.643
May 21	2130	341	9.66	2.47	.753
June 6	0030	333	9.43	2.41	.735

Minimum daily discharge, 6.5 ft³/s (0.184 m³/s) Nov. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	10	30	18	15	30	225	222	186	82	34	25
2	11	12	229	15	15	28	196	222	205	78	33	24
3	10	9.7	184	17	18	27	171	223	231	76	32	28
4	9.7	10	105	20	21	25	155	214	267	72	32	26
5	9.7	10	82	21	24	22	141	196	299	70	32	25
6	9.7	10	71	25	30	24	128	186	324	70	31	26
7	9.2	10	59	28	37	29	116	189	322	70	30	26
8	9.2	8.0	52	31	39	37	110	209	299	67	29	25
9	9.2	10	50	32	39	38	109	241	274	64	29	32
10	9.2	11	52	32	36	40	126	258	245	62	28	37
11	8.7	11	60	29	33	42	144	250	218	60	26	28
12	8.3	10	58	26	33	43	139	231	200	59	26	26
13	8.3	10	88	26	32	43	135	223	186	56	26	26
14	8.3	11	123	26	29	43	132	238	171	53	26	25
15	8.3	12	126	27	25	43	128	236	160	52	27	24
16	8.3	12	99	26	23	44	126	229	146	58	26	24
17	8.3	10	84	26	24	49	114	229	130	52	26	24
18	8.3	8.0	71	25	26	59	107	225	124	50	26	24
19	8.3	7.5	58	25	26	72	105	241	119	48	26	24
20	8.3	7.0	56	25	27	80	105	276	114	47	26	23
21	8.3	6.5	54	25	28	99	104	305	112	43	26	24
22	8.3	6.5	54	24	29	126	104	328	110	42	27	24
23	8.3	7.0	48	22	32	189	97	299	105	41	27	24
24	8.7	8.0	43	22	32	195	94	263	102	40	32	24
25	8.7	9.0	40	24	33	178	100	232	97	39	31	23
26	8.7	14	35	23	33	186	112	211	92	40	28	23
27	8.7	16	30	22	33	198	195	204	88	42	26	22
28	8.7	17	28	22	33	211	254	198	84	38	25	23
29	11	26	27	21	---	232	245	187	91	36	24	23
30	11	21	26	19	---	254	240	180	86	35	24	23
31	9.2	---	24	18	---	245	---	180	---	34	26	---
TOTAL	280.9	330.2	2146	742	805	2931	4277	7125	5187	1676	867	755
MEAN	9.06	11.0	69.2	23.9	28.8	94.5	143	230	173	54.1	28.0	25.2
MAX	11	26	229	32	39	254	254	328	324	82	34	37
MIN	8.3	6.5	24	15	15	22	94	180	84	34	24	22
AC-FT	557	655	4260	1470	1600	5810	8480	14130	10290	3320	1720	1500

CAL YR 1977 TOTAL 7334.2 MEAN 20.1 MAX 229 MIN 5.1 AC-FT 14550
WTR YR 1978 TOTAL 27122.1 MEAN 74.3 MAX 328 MIN 6.5 AC-FT 53800

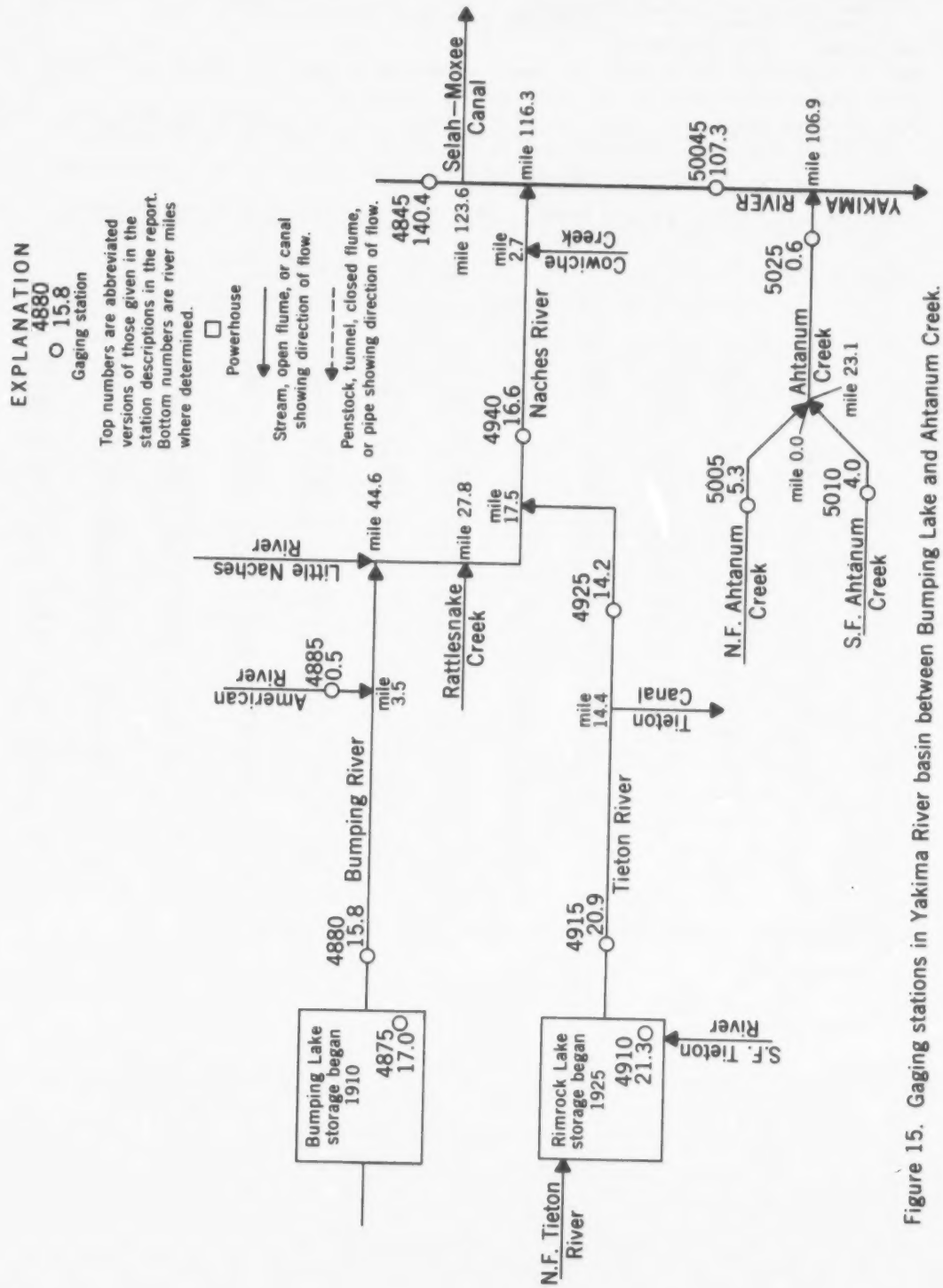

Figure 15. Gaging stations in Yakima River basin between Bumping Lake and Ahtanum Creek.

12484500 YAKIMA RIVER AT UMTANUM, WA

LOCATION.--Lat 46°51'46", long 120°28'44", in SW¼NW¼ sec.20, T.16 N., R.19 E., Kittitas County, Hydrologic Unit 17030001, on right bank at Umtanum railway siding, 0.5 mi (0.8 km) upstream from Umtanum Creek, 4.2 mi (6.8 km) upstream from McPherson Canyon, 10 mi (16 km) south of Ellensburg, and at mile 140.4 (225.9 km).

DRAINAGE AREA.--1,594 mi² (4,128 km²).

PERIOD OF RECORD.--August 1906 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 412: 1914. WSP 1286: 1910. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,300.00 ft (396.240 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 28, 1911, nonrecording gage at approximately same site at various datums. Sept. 28, 1911, to Nov. 23, 1936, water-stage recorder at site about 300 ft (91 m) upstream at datum 26.70 ft (8.138 m) higher.

REMARKS.--Records excellent. Flow partly regulated by Keechelus, Kachess, and Cle Elum Lakes. Diversions above station for irrigation of about 105,000 acres (420 km²).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,000 ft³/s (1,160 m³/s) Nov. 15 or 16, 1906, gage height, 41.1 ft (12.53 m), from floodmarks, present datum; minimum recorded, 138 ft³/s (3.91 m³/s) Oct. 3, 1915, gage height, 2.86 ft (0.872 m), datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,500 ft³/s (609 m³/s) Dec. 3, gage height, 37.63 ft (11.470 m); minimum daily, 336 ft³/s (9.52 m³/s) Oct. 24, 27, 28, gage height, 30.07 ft (9.165 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1230	385	2930	1000	952	1490	5730	3120	3320	3320	3710	3650
2	777	629	10400	900	926	1380	5030	2980	3440	3250	4500	3590
3	646	1010	18700	900	928	1290	4450	2950	4240	3160	4760	3620
4	608	840	10400	940	984	1310	4100	2760	5110	2670	4690	3580
5	587	735	6350	950	937	1270	3890	2530	6180	2590	4620	3530
6	558	653	4660	960	1190	1230	3620	2340	6950	2480	4580	3550
7	538	632	3850	960	1860	1280	3390	2120	6670	2700	4550	3470
8	503	685	3190	965	2470	1420	3180	2100	5560	3000	4510	3340
9	489	669	2700	958	3130	1400	3070	2160	5340	2980	4410	3280
10	463	654	2410	1240	2340	1450	3130	2330	5220	3000	4340	3280
11	452	743	2510	1180	1830	1510	3390	2320	4960	3130	4330	3210
12	457	850	3070	1040	1640	1530	3440	2150	4450	3200	4340	3100
13	440	841	4690	989	1480	1530	3320	2140	3380	3350	4340	3000
14	435	861	6520	980	1380	1550	3030	2550	3290	3590	4280	2890
15	428	1230	8120	1990	1340	1510	2500	3160	3230	3560	4330	2790
16	418	1320	6840	1780	1270	1610	2480	3160	3700	3610	4300	2740
17	404	1160	5390	1410	1220	1610	2480	2980	4480	3600	4230	2640
18	398	1030	4270	1280	1170	1720	2750	2820	4460	3800	4160	2580
19	378	908	3500	1330	1280	2140	2800	2730	4340	3820	4130	2460
20	366	880	2970	1360	1390	2570	2810	2950	4550	3850	4110	2330
21	355	750	2630	1350	1410	2970	2700	5330	3390	4210	4100	2250
22	353	650	2400	1400	1540	3580	2680	6570	3440	4210	4050	2160
23	349	620	2170	1250	1560	4630	2600	6170	3920	4210	4030	2150
24	349	630	2010	1150	1750	5870	2460	5020	4490	4160	4090	2180
25	345	650	1840	1100	1680	5520	2110	3920	4600	4250	4120	2140
26	343	1900	1600	1070	1820	5620	2300	3710	4370	4200	4080	2050
27	337	2670	1400	1090	1750	5860	3130	3430	3280	4510	4000	2050
28	340	2320	1350	1060	1600	5940	3890	3310	3410	4360	3920	1980
29	347	2980	1300	1030	---	6380	3720	3340	3570	4260	3820	1920
30	347	3690	1250	991	---	6710	3450	3360	3690	4220	3730	1840
31	358	---	1150	971	---	6390	---	3570	---	4130	3700	---
TOTAL	14398	33495	134570	35574	42752	90270	97550	100080	131050	111440	130860	83370
MEAN	464	1117	4341	1148	1527	2912	3252	3228	4368	3595	4221	2779
MAX	1230	3690	18700	1990	3130	6710	5730	6570	6950	4510	4760	3650
MIN	337	385	1150	900	909	1230	2110	2100	3230	2480	3700	1840
AC-FT	28560	66440	266900	70560	84800	179100	193500	198500	259900	221000	259600	165400

CAL YR 1977 TOTAL 737544 MEAN 2021 MAX 18700 MIN 337 AC-FT 1463000
WTR YR 1978 TOTAL 1005409 MEAN 2755 MAX 18700 MIN 337 AC-FT 1994000

12488000 BUMPING RIVER NEAR NILE, WA

LOCATION.--Lat 46°52'48", long 121°16'52", in NE¼ sec.13, T.16 N., R.12 E. (unsurveyed), Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on right bank 1.2 mi (1.9 km) downstream from spillway of Bumping Lake Dam, 1.3 mi (2.1 km) southwest of Gooseprairie post office, 8.6 mi (13.8 km) southwest of town of American River, 15.8 mi (25.4 km) west of Nile, and at mile 15.8 (25.4 km).

DRAINAGE AREA.--70.7 mi^2 (183.1 km^2).

PERIOD OF RECORD.--June to July 1906, April 1909 to current year. Water temperatures October 1970 to May 1971.

REVISED RECORDS.--WSP 369: 1911. WSP 1286: 1911. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,330 ft (1,015 m), from topographic map. Prior to June 13, 1913, nonrecording gages at several sites within 1.3 mi (2.1 km) upstream of present site at different datums. June 13, 1913 to September 30, 1972, water-stage recorder at site 0.8 mi (1.3 km) upstream at different datum.

REMARKS.--Flow completely regulated by dam at Bumping Lake.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--69 years (water years 1910-78), 296 ft^3/s (8.383 m^3/s), 214,500 acre-ft/yr (264 hm^3/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,180 ft^3/s (147 m^3/s) Dec. 29, 1917, gage height, 9.33 ft (2.844 m), site and datum then in use; practically no flow when gates in outlet conduit are closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,590 ft^3/s (45.0 m^3/s) Dec. 4, gage height, 4.87 ft (1.484 m); minimum, 118 ft^3/s (3.34 m^3/s) Mar. 1-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	186	146	246	273	247	119	155	227	519	474	218	199
2	184	156	311	273	246	118	158	230	607	481	216	196
3	183	158	328	273	244	118	156	230	740	447	216	195
4	180	160	323	273	244	118	155	235	909	406	216	195
5	179	162	319	270	244	118	155	264	1080	370	216	195
6	177	163	319	269	244	118	154	301	1200	353	215	195
7	176	163	344	269	241	118	153	334	1080	351	213	195
8	174	163	446	269	241	120	153	369	985	343	213	194
9	173	163	441	269	241	120	152	444	878	325	211	195
10	171	165	439	267	241	120	153	495	839	384	210	192
11	169	168	662	265	237	118	153	520	748	352	209	192
12	168	169	759	265	237	118	155	499	690	297	209	192
13	165	171	927	265	237	118	183	547	652	270	209	192
14	163	176	1510	265	233	118	216	727	608	253	209	192
15	161	177	1470	262	233	118	218	773	556	242	209	189
16	159	177	1130	262	233	118	220	706	510	250	208	189
17	157	177	854	262	230	118	220	624	485	241	207	189
18	155	177	668	262	230	118	220	593	526	234	206	189
19	153	174	542	259	229	120	220	602	574	228	206	186
20	151	174	455	258	227	120	220	709	607	227	206	186
21	149	174	396	258	227	123	220	846	629	227	204	186
22	146	172	354	258	225	124	220	820	618	225	202	186
23	145	172	325	255	177	130	216	718	592	223	202	183
24	144	171	306	255	120	133	217	630	547	223	202	183
25	144	184	289	255	120	138	219	560	491	223	202	183
26	143	207	285	252	120	140	220	501	440	224	200	183
27	141	219	282	251	120	141	223	489	433	223	199	242
28	140	225	281	251	120	145	224	519	467	221	199	299
29	139	234	280	250	---	148	226	513	502	220	199	297
30	140	237	277	248	---	151	226	489	484	220	200	295
31	139	---	277	248	---	155	---	483	---	220	199	---
TOTAL	4954	5334	15845	8111	5988	3899	5780	15997	19996	8977	6430	6084
MEAN	160	178	511	262	214	126	193	516	667	290	207	203
MAX	186	237	1510	273	247	155	226	846	1200	481	218	299
MIN	139	146	246	248	120	118	152	227	433	220	199	183
AC-FT	9830	10580	31430	16090	11880	7730	11460	31730	39660	17810	12750	12070
†	-5,110	+11,330	+16,080	-8,310	-6,140	+6,850	+7,600	+2,080	+380	-3,060	-7,010	-6,320
MEAN‡	76.7	368	772	126	103	237	320	550	673	240	93.4	96.6
CFSM‡	1.08	5.21	10.93	1.79	1.46	3.35	4.53	7.78	9.52	3.39	1.32	1.37
IN‡	1.25	5.81	12.59	2.06	1.52	3.87	5.05	8.97	10.62	3.91	1.52	1.52
AC-FT‡	4,716	21,910	47,495	7,778	5,737	14,584	19,065	33,810	40,056	14,746	5,744	5,747

CAL YR 1977: TOTAL 62,956.1 MEAN 172 MAX 1,510 MIN 2.6 AC-FT 124,900
DO.....: MEAN‡ 211 CFSM‡2.99 IN‡ 40.52 AC-FT‡ 152,923
WTR YR 1978: TOTAL 107,395.0 MEAN 294 MAX 1,510 MIN 118 AC-FT 213,000
DO....: MEAN‡ 306 CFSM‡4.33 IN‡ 58.77 AC-FT‡ 221,388

† Change in contents, in acre-feet, in Bumping Lake.
‡ Adjusted for change in contents in Bumping Lake.

YAKIMA RIVER BASIN

12488500 AMERICAN RIVER NEAR NILE, WA

LOCATION.--Lat 46°58'40", long 121°10'03", in SE¼NW¼ sec.12, T.17 N., R.13 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on right bank 300 ft (91 m) upstream from Bumping Lake Road bridge, 4.9 mi (7.9 km) downstream from Hall Creek, 16.0 mi (25.7 km) northwest of Nile, and at mile 0.5 (0.8 km).

DRAINAGE AREA.--78.9 mi^2 (204.4 km^2).

PERIOD OF RECORD.--April 1909 to March 1912, July to September 1913, June to September 1914, June to September 1915, October 1939 to current year. Monthly discharge only for some periods, published in WSP 1316. Chemical analyses October 1962 to September 1964, water temperatures October 1968 to May 1971.

REVISED RECORDS.--WSP 982: 1940-42. WSP 1216: Drainage area. WSP 1286: 1911.

GAGE.--Water-stage recorder. Datum of gage is 2,700.0 ft (822.96 m) Washington State Highway Department datum. Prior to Sept. 12, 1915, nonrecording gage at site 300 ft (91 m) downstream at different datum. Oct. 12 to Dec. 7, 1939, nonrecording gage at present site and datum.

REMARKS.--Records good. No regulation or diversion.

AVERAGE DISCHARGE.--41 years (water years, 1910-11, 1940-78), 246 ft^3/s (6.967 m^3/s) 42.34 in/yr (1,075 mm/yr) 178,200 acre-ft/yr (220 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,340 ft^3/s (94.6 m^3/s) Dec. 4, 1975, gage height, 77.37 ft (23.582 m); minimum, 20 ft^3/s (0.57 m^3/s) Nov. 22, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,110 ft^3/s (59.8 m^3/s) Dec. 2, gage height, 76.35 ft (23.271 m); minimum daily, 45 ft^3/s (1.27 m^3/s) Oct. 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	98	414	110	85	106	512	386	481	484	111	84
2	56	274	1520	100	84	100	465	413	588	489	107	83
3	54	194	1470	100	85	96	419	423	726	425	103	81
4	52	158	897	130	86	94	382	401	865	383	99	88
5	50	140	648	140	87	91	349	368	1020	368	96	87
6	48	125	543	135	94	94	318	349	1070	373	92	83
7	50	117	478	125	97	102	290	350	869	375	91	84
8	50	108	399	131	96	113	271	382	818	353	88	102
9	49	100	344	132	95	113	258	440	805	350	85	134
10	48	119	335	128	92	113	270	474	712	299	82	137
11	48	131	559	121	85	114	303	469	623	263	86	136
12	47	122	525	116	80	114	301	440	578	244	84	127
13	47	121	568	113	76	113	299	457	567	245	86	112
14	47	137	810	112	78	111	289	559	530	252	83	104
15	46	141	760	110	80	110	279	580	478	240	87	98
16	46	120	619	107	80	110	283	522	444	294	84	92
17	46	105	522	105	81	112	263	487	454	261	82	92
18	46	90	454	102	81	126	257	474	503	226	80	90
19	45	80	393	100	82	143	258	495	560	210	79	87
20	45	65	343	98	84	164	261	615	569	196	78	86
21	46	60	308	100	89	200	248	767	584	183	78	83
22	46	70	280	97	96	264	239	731	570	175	78	83
23	48	85	250	94	103	340	228	612	530	167	79	80
24	54	130	220	92	109	369	221	527	473	160	89	80
25	59	188	200	91	112	397	226	473	419	150	95	105
26	59	629	180	91	112	435	281	434	391	149	89	143
27	57	434	170	89	109	440	344	427	414	168	83	124
28	54	336	160	89	108	469	389	468	476	143	79	110
29	64	402	150	87	---	521	396	454	526	131	76	102
30	84	351	140	86	---	547	401	431	491	122	75	101
31	81	---	130	85	---	545	---	437	---	115	89	---
TOTAL	1630	5230	14789	3316	2546	6761	9300	14845	18134	7993	2693	2998
MEAN	52.6	174	477	107	90.9	218	310	479	604	258	86.9	99.9
MAX	84	629	1520	140	112	547	512	767	1070	489	111	143
MIN	45	60	130	85	76	91	221	349	391	115	75	80
CFSM	.67	2.21	6.05	1.36	1.15	2.76	3.93	6.07	7.66	3.27	1.10	1.27
IN.	.77	2.47	6.97	1.56	1.20	3.19	4.38	7.00	8.55	3.77	1.27	1.41
AC-FT	3230	10370	29330	6580	5050	13410	18450	29450	35970	15850	5340	5950

CAL YR 1977 TOTAL 51050 MEAN 140 MAX 1520 MIN 30 CFSM 1.77 IN 24.07 AC-FT 101300
WTR YR 1978 TOTAL 90235 MEAN 247 MAX 1520 MIN 45 CFSM 3.13 IN 42.54 AC-FT 179000

RESERVOIRS IN YAKIMA RIVER BASIN, WA

12474000 KEECHELUS LAKE.--Lat 47°19'21", long 121°20'18", in SE¼NE¼ sec.12, T.21 N., R.11 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, at headgate tower of outlet at dam on Yakima River 3.0 mi (4.8 km) northwest of Martin, 10 mi (16 km) northwest of Easton, and at mile 214.5 (345.1 km). DRAINAGE AREA, 54.7 mi² (141.7 km²). PERIOD OF RECORD, January 1906 to current year. GAGE, water-stage recorder and low water staff gages. Datum of gage is 0.00 ft (0.000 m) Bureau of Reclamation datum. Prior to Mar. 24, 1967, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1917; storage began behind crib dam Jan. 12, 1906, behind present dam Aug. 19, 1914. Initial filling of present reservoir June 15, 1920. Usable capacity, 157,800 acre-ft (195 hm³) between elevation, 2,425.00 ft (739.140 m), invert of gate sill, and 2,517.00 ft (767.182 m), spillway crest. Spillway raised 2 ft (0.6 m) Sept. 12, 1952. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 160,940 acre-ft (198 hm³) June 5, 1969, elevation, 2,518.23 ft (767.557 m); minimum observed, 448 acre-ft (0.552 hm³) Sept. 6, 12, 13, 1906 (original crib dam); minimum elevation observed, 2,428.30 ft (740.146 m) Sept. 20, 1926.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 160,210 acre-ft (198 hm³) Mar. 27, elevation, 2,517.95 ft (767.471 m); minimum, 18,180 acre-ft (22.4 hm³) Oct. 1, elevation, 2,439.32 ft (743.505 m).

12475500 KACHESS LAKE.--Lat 47°15'53", long 121°12'16", in SW¼SW¼ sec.34, T.21 N., R.13 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, on outlet gate tower at dam on Kachess River, 2.4 mi (3.9 km) northwest of Easton. DRAINAGE AREA, 63.6 mi² (164.7 km²). PERIOD OF RECORD, September 1905 to current year. GAGE, water-stage recorder. Datum of gage is 0.00 ft (0.000 m) Bureau of Reclamation datum. Prior to Oct. 28, 1966, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1912. Original crib dam, capacity of 21,000 acre-ft (25.9 hm³), used Sept. 20, 1905, to June 30, 1911. Storage behind present dam began June 30, 1911. Usable capacity, 239,000 acre-ft (295 hm³) between elevation, 2,192.75 ft (668.350 m), invert of gate sill, and 2,262.00 ft (689.458 m), top of spillway gate. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 244,800 acre-ft (302 hm³) May 9, 1957, elevation, 2,263.29 ft (689.851 m); minimum observed, 525 acre-ft (0.647 hm³) Sept. 14, 15, 1910 (original crib dam); minimum elevation observed, 2,197.73 ft (669.868 m) Sept. 25, 27, 1915.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 244,670 acre-ft (302 hm³) June 6, 7, elevation, 2,263.25 ft (689.839 m); minimum, 82,390 acre-ft (102 hm³) Oct. 1, elevation, 2,222.04 ft (677.278 m).

12478500 CLE ELUM LAKE.--Lat 47°14'44", long 121°04'24", in NE¼NE¼ sec.10, T.20 N., R.14 E., Kittitas County, Hydrologic Unit 17030001, at dam on Cle Elum River at outlet of Cle Elum Lake, 4.0 mi (6.4 km) northwest of Roslyn, and at mile 8.3 (13.4 km). DRAINAGE AREA, 203 mi² (526 km²). PERIOD OF RECORD, May 1906 to current year. GAGE, water-stage recorder. Datum of gage is Bureau of Reclamation datum. Prior to Mar. 6, 1968, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1933; storage began behind present dam Feb. 26, 1932. Usable capacity, 436,900 acre-ft (539 hm³) between elevation, 2,110.00 ft (643.128 m), invert of gate sill, and 2,240.00 ft (682.752 m), top of spillway gate. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 448,520 acre-ft (551 hm³) May 8, 9, 1957, elevation, 2,241.98 ft (683.356 m); minimum observed, 2,380 acre-ft (2.93 hm³) Aug. 31, 1906; minimum elevation observed, 2,114.35 ft (644.454 m) Oct. 14, 1932. Storage was uncontrolled Oct. 3, 1931, to Feb. 26, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 444,670 acre-ft (548 hm³) June 6, elevation, 2,241.60 ft (683.240 m); minimum observed, 13,830 acre-ft (17.1 hm³) Oct. 1, elevation, 2,116.92 ft (645.237 m).

12487500 BUMPING LAKE.--Lat 46°52'25", long 121°17'57", in SW¼ sec.14 (unsurveyed), T.16 N., R.12 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, at outlet of dam on Bumping Rumping River, 2.2 mi (3.5 km) southwest of Goose Prairie, 10 mi (16 km) southwest of town of American River, 19 mi (31 km) west of Nile, and at mile 17.0 (27.4 km). DRAINAGE AREA, 69.3 mi² (179.5 km²). PERIOD OF RECORD, June to July 1906, April 1909 to current year. GAGE, water-stage recorder. Datum of gage is Bureau of Reclamation datum. Prior to Nov. 23, 1966, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earth-fill dam completed in 1910; storage began Nov. 3, 1910. Usable capacity, 33,700 acre-ft (41.6 hm³) between elevation 3,389.00 ft (1,032.967 m), invert of gate sill and 3,426.00 ft (1,044.245 m), spillway crest. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 39,840 acre-ft (49.1 hm³) June 21, 22, 1925, elevation, 3,430.55 ft (1,045.632 m); minimum observed, 1,130 acre-ft (1.39 hm³) Feb. 5, 6, 7, 8, 9, 1949, elevation, 3,390.80 ft (1,033.516 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 36,380 acre-ft (44.9 hm³) Dec. 14, elevation, 3,428.02 ft (1,044.860 m); minimum, 5,240 acre-ft (6.46 hm³) Oct. 31, elevation, 3,397.06 ft (1,035.424 m).

12491000 RIMROCK LAKE.--Lat 46°39'23", long 121°07'43", in NE¼SW¼ sec.31, T.14 N., R.14 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on upstream spillway pier at Tieton dam on Tieton River at Rimrock, 0.6 mi (1.0 km) upstream from Wildcat Creek, 7.1 mi (11.4 km) upstream from headworks on Tieton Canal, 21 mi (34 km) west of Naches and at mile 21.3 (34.3 km). DRAINAGE AREA, 187 mi² (484 km²). PERIOD OF RECORD, April 1925 to current year. Prior to October 1959, published as Tieton Reservoir. GAGE, water-stage recorder and low water staff gages. Datum of gage is Bureau of Reclamation datum. Prior to Mar. 14, 1967, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earth-fill dam completed in 1925; storage began Apr. 27, 1925. Usable capacity, 198,000 acre-ft (244 hm³) between elevation 2,766.00 ft (843.077 m), invert of tunnel entrance, and 2,926.00 ft (891.845 m), crest of spillway gates. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 201,630 acre-ft (249 hm³) June 18, 1974, elevation, 2,927.43 ft (892.281 m); minimum observed, 89 acre-ft (0.110 hm³) Oct. 12, 1926, elevation, 2,766.77 ft (843.311 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 200,660 acre-ft (247 hm³) June 6, elevation, 2,927.08 ft (892.174 m); minimum, 46,630 acre-feet (57.5 hm³) Oct. 1, elevation, 2,843.63 ft (866.738 m).

RESERVOIRS IN YAKIMA RIVER BASIN, WA--Continued

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER TO SEPTEMBER

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
	12474000 KEECHULUS LAKE			12475500 KACHESS LAKE		
Sept. 30	2,439.31	18,160	----	2,222.02	82,330	-----
Oct. 31	2,444.25	24,620	+6,460	2,223.68	87,140	+4,810
Nov. 30	2,475.49	69,610	+44,990	2,233.49	121,190	+34,050
Dec. 31	2,506.14	131,080	+61,470	2,248.20	178,800	+57,610
CAL YR 1977	2,506.14	----	+85,950	----	----	+1,880
Jan. 31	2,509.73	139,640	+8,560	2,250.45	188,270	+9,470
Feb. 28	2,513.35	148,540	+8,900	2,252.25	195,960	+7,690
Mar. 31	2,516.97	157,690	+9,150	2,257.12	217,150	+21,190
Apr. 30	2,514.41	151,200	-6,490	2,261.75	237,850	+20,700
May 31	2,517.43	158,880	+7,680	2,262.73	242,300	+4,450
June 30	2,515.21	153,220	-5,660	2,261.57	237,040	-5,260
July 31	2,501.59	120,630	-32,590	2,256.29	213,500	-23,540
Aug. 31	2,478.96	75,520	-45,110	2,250.64	189,080	-24,420
Sept. 30	2,466.85	55,930	-19,590	2,246.71	172,620	-16,460
WTR YR 1978	----	----	+37,770	----	----	+90,290
	12478500 CLE ELUM LAKE			12487500 BUMPING LAKE		
Sept. 30	2,116.90	13,790	----	3,403.99	10,350	----
Oct. 31	2,124.17	28,640	+14,850	3,397.06	5,240	-5,110
Nov. 30	2,153.33	100,470	+71,830	3,411.01	16,570	+11,330
Dec. 31	2,191.76	230,180	+129,710	3,425.18	32,650	+16,080
CAL YR 1977	2,191.76	----	-112,880	-----	-----	+28,050
Jan. 31	2,196.75	249.380	+19,200	3,418.33	24,340	-8,310
Feb. 28	2,200.61	264,610	+15,230	3,412.64	18,200	-6,140
Mar. 31	2,213.54	317,640	+53,030	3,418.95	25,050	+6,850
Apr. 30	2,226.92	375,970	+58,330	3,425.18	32,650	+7,600
May 31	2,240.79	440,760	+64,790	3,426.78	34,730	+2,080
June 30	2,232.71	402,470	-38,290	3,427.07	35,110	+380
July 31	2,205.19	283,070	-119,400	3,424.71	32,050	-3,060
Aug. 31	2,153.00	99,510	-183,560	3,418.94	25,040	-7,010
Sept. 30	2,122.31	24,800	-74,710	3,413.15	18,720	-6,320
WTR YR 1978	-----	----	+11,010	----	----	+8,370
	12491000 RIMROCK LAKE					
Sept. 30	2,843.63	46,630	----			
Oct. 31	2,851.49	56,590	+9,960			
Nov. 30	2,866.54	78,410	+21,820			
Dec. 31	2,912.91	166,740	+88,330			
CAL YR 1977	----	----	+57,830			
Jan. 31	2,898.26	135,330	-31,410			
Feb. 28	2,905.36	150,140	+14,810			
Mar. 31	2,914.37	170,060	+19,920			
Apr. 30	2,914.96	171,410	+1,350			
May 31	2,926.55	199,390	+27,980			
June 30	2,926.31	198,780	-610			
July 31	2,924.04	193,090	-5,690			
Aug. 31	2,912.39	165,560	-27,530			
Sept. 30	2,900.87	140,690	-24,870			
WTR YR 1978	----	----	+94,060			

12491500 TIETON RIVER AT TIETON DAM, NEAR NACHES, WA

LOCATION.--Lat 46°39'46", long 121°07'25", in NW¼NE¼ sec.31, T.14 N., R.14 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on left bank 900 ft (270 m) upstream from Wildcat Creek, 1,200 ft (370 m) downstream from Tieton Dam, 19.0 mi (30.6 km) upstream from Oak Creek, 22 mi (35 km) southwest of Naches, and at mile 20.9 (33.6 km).

DRAINAGE AREA.--187 mi^2 (484 km^2).

PERIOD OF RECORD.--August 1908 to December 1912, June to September 1914, June 1918 to March 1921, April 1925 to current year. Monthly discharge only for some periods, published in WSP 1316. Published as "at McAllister Meadows" prior to October 1914 and as "at Rimrock" 1918-19.

REVISED RECORDS.--WSP 369: 1909-10. WSP 1286: 1910, 1928(M), 1935(M). WSP 1316: 1909.

GAGE.--Water-stage recorder. Datum of gage is 2,680.99 ft (817.166 m) Bureau of Reclamation datum. Prior to Oct. 1, 1914, nonrecording gage at site 0.3 mi (0.5 km) upstream at different datum. Oct. 1, 1918, to Mar. 31, 1919, Apr. 27 to Sept. 4, 1925, nonrecording gage, and Sept. 5, 1925, to Apr. 23, 1933, water-stage recorder, at site about 800 ft (240 m) downstream at different datum. Apr. 24, 1933, to Dec. 11, 1934, water-stage recorder at present site at datum 2.0 ft (0.61 m) higher.

REMARKS.--No diversion above station. Flow regulated by Rimrock Lake 1,200 ft (370 m) upstream beginning April 1925.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--59 years (water years 1909-12, 1919-20, 1926-78). 509 ft^3/s (14.41 m^3/s), 368,800 acre-ft/yr (455 hm^3/yr), adjusted for storage since October 1925.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,450 ft^3/s (239 m^3/s) Dec. 22, 1933, gage height, 9.24 ft (2.816 m), datum then in use; no flow Apr. 4-6, 10, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,140 ft^3/s (60.6 m^3/s) Aug. 1, gage height, 5.96 ft (1.817 m); minimum, 1.3 ft^3/s (0.037 m^3/s) Oct. 15 and Nov. 8

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	1.0	5.0	894	4.0	4.0	465	244	769	943	1730	770
2	3.0	1.0	93	886	4.0	4.0	466	248	825	1070	927	769
3	3.0	1.0	65	958	4.0	4.0	469	250	1060	1000	692	769
4	3.0	1.0	15	1150	4.0	3.0	768	252	1280	902	762	769
5	3.0	1.0	9.0	1150	4.0	3.0	934	253	1520	830	721	768
6	3.0	1.0	8.0	1150	4.0	3.0	933	256	1650	855	720	766
7	2.0	1.0	6.0	1140	4.0	4.0	931	256	1510	863	759	765
8	2.0	1.0	5.0	1140	4.0	3.0	923	256	1380	843	778	765
9	2.0	1.0	5.0	1140	4.0	3.0	912	256	1350	813	778	765
10	2.0	1.0	4.0	1140	5.0	103	1010	258	1240	778	779	764
11	2.0	1.0	5.0	1130	4.0	182	1230	259	1088	759	780	761
12	1.0	1.0	6.0	1130	4.0	187	1230	259	1000	754	780	716
13	1.0	1.0	22	1130	4.0	185	1230	262	952	752	784	676
14	1.0	2.0	28	1130	4.0	177	702	262	930	752	790	676
15	1.0	2.0	20	1130	4.0	152	464	262	866	751	791	672
16	1.0	2.0	14	1120	4.0	133	463	262	796	750	789	672
17	1.0	2.0	10	1120	4.0	132	465	262	737	751	790	671
18	1.0	2.0	8.0	1120	4.0	132	465	262	834	751	791	673
19	1.0	2.0	6.0	1120	4.0	133	465	262	887	750	788	687
20	1.0	2.0	5.0	893	4.0	134	465	263	953	748	787	688
21	1.0	2.0	4.0	339	4.0	134	404	264	991	583	786	688
22	1.0	2.0	253	339	4.0	134	244	265	973	526	784	688
23	1.0	2.0	951	339	5.0	134	244	280	1070	526	781	688
24	2.0	1.0	916	339	5.0	135	244	523	1100	526	780	687
25	1.0	2.0	915	339	5.0	137	244	721	930	527	777	685
26	1.0	3.0	912	263	5.0	137	244	748	680	598	775	683
27	1.0	2.0	910	220	4.0	337	244	739	744	682	776	683
28	1.0	2.0	906	220	4.0	461	244	813	865	683	774	682
29	1.0	3.0	909	220	---	464	244	823	911	681	773	628
30	2.0	3.0	906	220	---	465	244	749	941	658	771	535
31	1.0	---	907	155	---	465	---	717	---	654	771	---
TOTAL	50.0	49.0	8828.0	24764	117.0	4684.0	17590	11786	30834	23059	25064	21289
MEAN	1.61	1.63	285	799	4.18	151	586	380	1028	744	809	707
MAX	3.0	3.0	951	1150	5.0	465	1230	823	1650	1070	1730	770
MIN	1.0	1.0	4.0	155	4.0	3.0	244	244	680	526	692	535
AC-FT	99	97	17510	49120	232	9290	34890	23380	61160	45740	49710	42070
†	+9,960	+21,820	+88,330	-31,410	+14,810	+19,920	+1,350	+27,980	-610	-5,690	-27,530	-24,870
MEAN‡	164	368	1,721	287	271	475	608	835	1,018	651	361	289
CFSM‡	0.87	1.97	9.20	1.54	1.45	2.54	3.25	4.47	5.44	3.48	1.93	1.55
IN‡	1.01	2.20	10.61	1.77	1.51	2.93	3.63	5.15	6.08	4.01	2.23	1.72
AC-FT‡	10,059	21,917	105,840	17,677	15,042	29,216	36,207	51,358	60,557	40,055	22,174	17,198

CAL YR 1977: TOTAL 121,042.80 MEAN 332 MAX 1,680 MIN 0.80 AC-FT 240,100
DO.....: MEAN‡ 411 CFSM‡ 2.20 IN‡ 29.84 AC-FT‡ 297,915
WTR YR 1978: TOTAL 168,034.00 MEAN 460 MAX 1,730 MIN 1.0 AC-FT 333,300
DO.....: MEAN‡ 590 CFSM‡ 3.16 IN‡ 42.84 AC-FT‡ 427,300

† Change in contents, in acre-feet, in Rimrock Lake.
‡ Adjusted for change in contents in Rimrock Lake.

12492500 TIETON RIVER AT HEADWORKS OF TIETON CANAL, NEAR NACHES, WA

LOCATION.--Lat 46°40'16", long 121°00'00", in NE¼SW¼ sec.30, T.14 N., R.15 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on right bank 1,000 ft (300 m) downstream from headworks of Tieton Canal, 7.1 mi (11.4 km) downstream from Tieton Dam, 12.4 mi (20.0 km) upstream from Oak Creek, 16 mi (26 km) southwest of Naches, and at mile 14.2 (22.8 km).

DRAINAGE AREA.--239 mi² (619 km²).

PERIOD OF RECORD.--April 1906 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1910(M), 1920.

GAGE.--Water-stage recorder. Datum of gage is 2,280.44 ft (695.078 m) National Geodetic Vertical Datum of 1929. Prior to July 28, 1909, nonrecording gages at same site or sites within 1.5 mi (2.4 km) downstream at same datum.

REMARKS.--Diversion for irrigation by Tieton Canal 1,000 ft (300 m) upstream. Flow regulated by Rimrock Lake 7.1 mi (11.4 km) upstream beginning April 1925.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--72 years, 570 ft³/s (16.14 m³/s) 413,000 acre-ft/yr (509 hm³/yr), adjusted for diversion since 1910 and for storage since October 1924.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,910 ft³/s (252 m³/s) Dec. 22, 1933, gage height, 9.70 ft (2.957 m); no flow at times in 1926, 1929, 1931-32, 1934, 1945.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,130 ft³/s (60.3 m³/s) Dec. 2, gage height, 4.93 ft (1.503 m); no flow Oct. 11 to Nov. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	6.0	196	923	37	66	631	273	520	634	1330	435
2	8.0	29	1320	924	35	62	604	263	594	763	674	439
3	5.0	9.0	601	985	33	57	572	241	818	701	326	440
4	2.0	6.0	323	1190	32	56	814	226	1050	596	412	440
5	2.0	4.0	206	1190	34	53	988	207	1290	518	370	443
6	2.0	4.0	175	1190	33	48	978	185	1430	535	370	449
7	2.0	5.0	145	1190	41	57	964	185	1300	550	402	455
8	2.0	6.0	120	1180	54	60	950	181	1180	524	618	462
9	2.0	6.0	100	1180	60	64	929	172	1160	493	699	476
10	3.0	16	85	1180	56	120	1030	160	1040	456	437	475
11	1.0	22	149	1180	51	232	1300	132	857	434	425	487
12	.00	14	145	1160	45	239	1270	104	757	427	425	465
13	.00	12	725	1160	38	238	1250	107	699	424	430	410
14	.00	14	772	1150	27	227	772	117	674	422	435	423
15	.00	18	512	1160	25	209	494	98	614	423	440	425
16	.00	16	340	1160	18	194	499	82	537	426	437	425
17	.00	13	251	1160	14	217	491	78	470	420	438	425
18	.00	11	189	1160	18	259	502	71	567	415	437	440
19	.00	10	151	1160	43	275	489	78	627	415	435	455
20	.00	6.0	125	970	52	269	492	94	673	412	435	456
21	.00	10	100	385	60	274	445	103	702	268	433	456
22	.00	16	251	385	68	275	281	86	685	201	431	456
23	.00	14	891	381	77	282	278	72	772	203	430	456
24	.00	13	957	380	87	284	264	304	816	199	429	456
25	.00	150	942	382	82	288	258	503	646	198	429	456
26	.00	150	949	310	78	296	284	532	418	256	430	460
27	.00	70	936	252	73	500	289	521	474	340	430	462
28	.00	53	931	252	69	649	286	589	559	341	434	462
29	.00	125	930	252	---	673	284	598	606	338	435	417
30	.00	77	930	252	---	682	280	511	634	317	435	403
31	.00	---	927	216	---	661	---	477	---	310	435	---
TOTAL	37.00	905.0	15374	25990	1332	7874	18970	7342	23119	12959	14726	13409
MEAN	1.19	30.2	496	839	47.6	254	632	237	771	418	475	447
MAX	8.0	156	1320	1190	87	682	1300	598	1430	763	1330	487
MIN	.00	4.0	85	216	14	48	250	70	418	198	326	403
AC-FT	73	1800	30490	51570	2640	15620	37630	14560	45860	25700	29210	26600
†	+9,960	+21,820	+88,330	-31,410	+14,810	+19,920	+1,350	+27,980	-610	-5,690	-27,530	-24,870
††	314	60	242	0	393	256	2,172	13,888	18,930	20,743	19,485	14,144
MEAN‡	168	398	1,936	328	321	582	692	918	1,079	663	344	267
CFSM‡	0.70	1.66	8.11	1.37	1.34	2.44	2.89	3.84	4.51	2.77	1.44	1.12
IN‡	0.81	1.86	9.34	1.58	1.40	2.81	3.23	4.43	5.04	3.20	1.66	1.25
AC-FT‡	10,347	23,676	119,060	20,147	17,846	35,794	41,170	56,430	64,186	40,757	21,167	15,871

CAL YR 1977: TOTAL 80,530.60 MEAN 221 MAX 1,320 MIN .00 AC-FT 159,700
DO.....: MEAN‡ 435 CFSM‡ 1.82 IN‡ 24.7 AC-FT‡ 314,670
WTR YR 1978: TOTAL 142,046.00 MEAN 389 MAX 1,430 MIN .00 AC-FT 281,700
DO.....: MEAN‡ 644 CFSM‡ 2.70 IN‡ 36.59 AC-FT‡ 466,452

† Change in contents, in acre-feet, in Rimrock Lake.
†† Diversion, in acre-feet, by Tieton Canal.
‡ Adjusted for change in lake contents and diversion.

12494000 NACHES RIVER BELOW TIETON RIVER, NEAR NACHES, WA

LOCATION.--Lat 46°44'48", long 120°46'05", in SW¼NE¼ sec.36, T.15 N., R.16 E., Yakima County, Hydrologic Unit 17030002, on left bank 0.4 mi (0.6 km) downstream from Wapatox power canal intake, 0.9 mi (1.4 km) downstream from Tieton River, 3.5 mi (5.6 km) northwest of Naches, and at mile 16.6 (26.7 km).

DRAINAGE AREA.--941 mi^2 (2,437 km^2).

PERIOD OF RECORD.--August to October 1905, October 1908 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1910(M), 1911, 1929-30(M), 1932-33(M), 1935(M). WSP 1396: 1954.

GAGE.--Water-stage recorder. Datum of gage is 1,549.67 ft (472.339 m) National Geodetic Vertical Daum of 1929. Prior to Dec. 7, 1916, nonrecording gage and Dec. 7, 1916, to Sept. 9, 1936, water-stage recorder, at site 0.6 mi (1.0 km) upstream at different datums. Sept. 10 to Oct. 30, 1936, nonrecording gage at present site and datum.

REMARKS.--Records good. Flow regulated by Bumping Lake since November 1910 and Rimrock Lake since October 1924. Diversions by Selah Valley and Tieton Canals since 1909, Wapatox Canal since 1936. Small unmeasured diversions for irrigation of approximately 420 acres (1.7 km^2) above station.

COOPERATION.--Gage-height record collected in cooperation with, and four discharge measurement furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--70 years (water years 1909-78), 1,745 ft^3/s (49.42 m^3/s), 1,264,000 acre-ft/yr (1,560 hm^3/yr) adjusted for diversions by Naches-Selah, Tieton, and Wapatox Canals, and for change in contents in Bumping and Rimrock Lakes.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,200 ft^3/s (912 m^3/s) Dec. 22, 23, 1933, gage height, 14.33 ft (4.368 m), site and datum then in use; minimum, 1 ft^3/s (0.03 m^3/s) Nov. 7, 1942, and for many days during winter of 1943-44, result of regulation and diversion.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,000 ft^3/s (510 m^3/s) Dec. 2, gage height, 20.07 ft (6.117 m); minimum, 48 ft^3/s (1.36 m^3/s) Oct. 25.

MONTHLY DISCHARGE OF NACHES RIVER AND CANALS NEAR NACHES, WASH.
WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Month	Runoff or Diversion in acre-feet				Change in contents in Bumping and Rimrock Lakes (acre-feet)	Adjusted flow of Naches River (acre-feet)
	Naches River near Naches	Selah Valley Canal	Tieton Canal	Wapatox Canal		
October	5,790	0	314	14,555	+4,850	25,509
November	24,880	0	60	21,582	+33,150	79,672
December	204,200	476	242	19,016	+104,410	328,344
CAL YR 1977	433,200	47,266	97,106	177,275	+85,880	840,727
January	81,330	0	0	16,608	-39,720	58,218
February	24,670	0	393	16,616	+8,670	50,349
March	87,370	918	256	15,549	+26,770	130,863
April	111,200	2,690	2,172	25,538	+8,950	150,550
May	127,500	6,623	13,888	27,295	+30,060	205,366
June	167,800	7,714	18,930	26,648	-230	220,862
July	60,240	8,011	20,743	19,034	-8,750	99,278
August	32,590	8,000	19,485	16,310	-34,540	41,845
September	29,880	6,115	14,144	17,549	-31,190	36,498
WTR YR 1978	957,400	40,543	90,628	236,300	+102,430	1,427,301

Note.--Previous years included City of Yakima diversion at Oak Flat. This diversion was discontinued during the 1975 water year.

12494000 NACHES RIVER BELOW TIETON RIVER, NEAR NACHES, WA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	236	89	1580	1440	545	324	2930	1850	2060	1870	1190	446
2	218	378	13000	1400	507	281	2600	1860	2520	2040	1120	442
3	208	306	9890	1520	504	245	2310	1860	3230	1840	500	442
4	189	214	5200	1730	497	276	2290	1740	4240	1600	587	442
5	176	169	3520	1750	498	253	2370	1600	5060	1410	548	446
6	121	135	2870	1700	528	230	2230	1490	5560	1320	538	495
7	92	122	2480	1650	582	244	2090	1460	4880	1380	480	505
8	91	111	2170	1640	632	302	1990	1540	4450	1300	565	500
9	87	96	1970	1630	680	312	1900	1770	4180	1210	782	543
10	84	110	1840	1660	661	377	1980	2000	3790	1110	516	587
11	80	261	2540	1640	624	524	2400	2010	3230	1060	465	592
12	77	199	2880	1590	614	778	2370	1860	2870	958	456	582
13	74	189	4160	1570	471	946	2340	1840	2660	898	460	505
14	72	234	7100	1550	323	958	2020	2230	2520	868	475	500
15	71	320	6230	1490	280	925	1570	2400	2290	843	485	475
16	67	299	4640	1730	259	910	1600	2240	2040	939	480	451
17	65	235	3590	1650	254	932	1500	2060	1910	893	460	451
18	63	197	2930	1620	245	1140	1470	1960	2040	823	456	460
19	61	160	2390	1590	261	1360	1460	2000	2310	780	451	470
20	59	125	2040	1520	303	1590	1490	2420	2400	755	446	470
21	57	60	1780	935	336	1900	1440	3060	2480	680	451	470
22	57	60	1640	918	387	2270	1200	3080	2420	587	451	470
23	55	90	2160	882	440	2770	1140	2670	2380	565	446	490
24	57	110	2130	859	429	2860	1070	2400	2380	554	470	537
25	65	397	1980	845	418	2750	1060	2340	1980	532	475	527
26	71	2070	1870	799	407	2800	1350	2170	1690	543	456	518
27	67	1480	1700	719	386	2750	1770	2040	1410	662	451	503
28	63	1180	1660	709	366	2930	2070	2170	1710	632	442	601
29	65	1660	1720	699	---	3260	2050	2200	1950	604	446	616
30	81	1550	1680	687	---	3550	2000	2020	1950	570	438	529
31	90	---	1590	679	---	3300	---	1950	---	543	446	---
TOTAL	2919	12546	102930	41001	12437	44047	56060	64290	84590	30309	16432	15065
MEAN	94.2	418	3320	1323	444	1421	1869	2074	2820	980	530	502
MAX	236	2070	13000	1750	680	3550	2930	3080	5560	2040	1190	616
MIN	55	60	1580	679	245	230	1060	1460	1410	532	438	442
AC-FT	5790	24880	204200	81330	24670	87370	111200	127500	167800	60240	32590	29880
†	+4,850	+33,150	+104,410	-39,720	+8,670	+26,770	+8,950	+30,060	-230	-8,750	-34,540	-31,190
††	14,869	21,642	19,734	16,608	17,009	16,723	30,400	47,806	53,292	47,788	43,795	37,808
MEAN‡	415	1,339	5,340	947	907	2,128	2,530	3,340	3,712	1,615	681	613
CFSM‡	0.44	1.42	5.68	1.01	0.96	2.26	2.69	3.55	3.94	1.72	0.72	0.65
IN‡	0.51	1.59	6.54	1.16	1.00	2.61	3.00	4.09	4.40	1.98	0.83	0.73
AC-FT‡	25,509	79,672	328,344	58,218	50,349	130,863	150,550	205,366	220,862	99,278	41,845	36,498

CAL YR 1977: TOTAL 218,425 MEAN 598 MAX 13,000 MIN 32 AC-FT 433,200
DO.....: MEAN‡ 1,161 CFSM‡ 1.23 IN‡ 16.75 AC-FT‡ 840,727
WTR YR 1978: TOTAL 482,686 MEAN 1,322 MAX 13,000 MIN 55 AC-FT 957,400
DO.....: MEAN‡ 1,971 CFSM‡ 2.10 IN‡ 28.44 AC-FT‡ 1,427,301

† Change in contents, in acre-feet, Bumping and Rimrock Lakes.
†† Diversion, in acre-feet, by Tieton, Selah Valley, and Wapatox Canals.
‡ Adjusted for change in lake contents and diversion.

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA

LOCATION.--Lat 46°32'04", long 120°27'58", in NW¼NE¼ sec.17, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on left bank 2,200 ft (670 m) upstream from Ahtanum Creek, 0.8 mi (1.3 km) upstream from Wapato Dam, 1.4 mi (2.3 km) southeast of Union Gap, and at about mile 107.3 (113.8 km).

DRAINAGE AREA.--3,479 mi^2 (9,011 km^2).

PERIOD OF RECORD.--October 1966 to current year. Chemical data 1969, 1971, and March 1975 to September 1976 (irrigation seasons only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Apr. 4, 1967, at site 1,200 ft (370 m) downstream at same datum.

REMARKS.--Records good. Diversions above station for irrigation of about 212,000 acres (860 km^2). Flow partly regulated by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes. Records at this site plus those for Ahtanum Creek at Union Gap (station 12502500) are equivalent to discontinued station 12503000, Yakima River at Union Gap.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,300 ft^3/s (1,000 m^3/s) Dec. 3, 1977, elevation, 949.55 ft (289.423 m); minimum, 565 ft^3/s (16.0 m^3/s) Mar. 27, 1977, elevation, 937.38 ft (285.715 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35,300 ft^3/s (1,000 m^3/s) Dec. 3, elevation, 949.55 ft (289.423 m); minimum, 870 ft^3/s (24.6 m^3/s) Oct. 24, 25, elevation, 937.75 ft (285.826 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2350	921	5070	3220	1980	2640	10300	5260	4750	4530	3510	3530
2	1680	1100	17000	2840	1830	2480	9040	4860	5200	4600	4380	3430
3	1440	1900	33200	3150	1810	2300	7880	4860	6400	4510	3910	3490
4	1310	1720	19700	3630	1770	2300	7240	4580	8000	3880	3940	3530
5	1220	1530	11500	3610	1830	2250	7180	4060	10000	3440	3870	3450
6	1160	1390	8580	3570	2170	2460	6760	3730	11300	3060	3800	3520
7	1130	1300	7130	3450	2920	2180	6320	3370	11000	3200	3730	3540
8	1090	1300	6030	3430	4360	2250	5840	3190	9900	3460	3740	3450
9	1060	1320	5280	3430	4620	2550	5520	3400	8900	3390	3970	3400
10	1030	1280	4740	4080	4360	2720	5420	3800	8300	3260	3720	3510
11	1010	1290	5140	3880	3290	3800	6100	3920	7400	3280	3510	3540
12	988	1440	6340	3500	2940	3150	6340	3660	6600	3230	3510	3440
13	974	1600	8150	3370	2690	3180	6170	3470	5300	3200	3540	3230
14	953	1590	17500	3370	2490	3170	5780	4100	4700	3260	3550	3120
15	960	1460	17000	5480	2380	3040	4560	5110	4500	3320	3540	2990
16	966	2190	14100	5340	2280	3130	4380	5170	4400	3480	3640	2890
17	957	2070	11100	4640	2190	3270	4260	4790	4800	3550	3600	2820
18	946	1860	8890	4180	2110	3700	4280	4410	5400	3490	3560	2770
19	937	1690	7290	4040	2180	4580	4400	4220	5600	3470	3510	2820
20	919	1480	6300	4100	2360	5240	4420	4610	5850	3370	3490	2750
21	907	1150	5600	3250	2480	5760	4260	6780	5200	3640	3530	2630
22	895	1120	5100	3120	2740	6850	4060	8800	5180	3490	3580	2530
23	886	1250	5280	2860	2880	8410	3740	8280	5550	3440	3640	2470
24	874	1270	5280	2660	3180	10200	3600	6940	6100	3400	3850	2590
25	889	1300	4960	2560	3010	9640	3270	5700	5800	3360	4060	2620
26	883	3510	4660	2470	3150	9590	3250	5220	5500	3370	4830	2450
27	884	4940	4140	2340	3080	9880	4520	4820	3750	3820	3950	2320
28	902	4180	3780	2290	2860	10300	5950	4720	4000	3830	3820	2490
29	902	4470	4000	2230	---	11100	6010	4600	4410	3600	3650	2560
30	916	5980	3980	2170	---	11800	5680	4700	5000	3560	3500	2350
31	910	---	3720	2130	---	11400	---	4600	---	3400	3510	---
TOTAL	32928	60001	270540	104390	75940	164560	166530	149730	188710	109890	115140	90230
MEAN	1062	2000	8727	3367	2712	5308	5551	4830	6290	3545	3714	3008
MAX	2350	5980	33200	5480	4620	11800	10300	8800	11300	[illegible]	4380	[illegible]
MIN	874	921	3720	2130	1770	2180	3250	3190	3750	[illegible]	3490	[illegible]
AC-FT	65310	119000	536600	207100	150600	326400	330300	297000	374300	218000	228400	[illegible]

CAL YR 1977 TOTAL 925885 MEAN 2534 MAX 33200 MIN 579 AC-FT 1835000
WTR YR 1978 TOTAL 1526589 MEAN 4188 MAX 33200 MIN 874 AC-FT 3032000

12500500 NORTH FORK AHTANUM CREEK NEAR TAMPICO, WA

LOCATION.--Lat 46°33'52", long 120°54'57", in SW¼SE¼ sec.35, T.13 N., R.15 E., Yakima County, Hydrologic Unit 17030003, on left bank 150 ft (46 m) downstream from Nasty Creek, 3.2 mi (5.1 km) northwest of Tampico, 20 mi (32.2 km) west of Yakima, and at mile 5.3 (8.5 km).

DRAINAGE AREA.--68.9 mi^2 (178.5 km^2).

PERIOD OF RECORD.--August 1907 to September 1978, discontinued (no winter records in water years 1908-09, 1916-30). Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1910(M), 1914-15.

GAGE.--Water-stage recorder. Concrete control Nov. 11, 1915, to December 1933, and broad-crested weir since September 1934. Altitude of gage is 2,450 ft (747 m), from topographic map. Aug. 26, 1907, to Apr. 1, 1913, Aug. 20, 1915, to Sept. 5, 1916, nonrecording gage, and Apr. 2, 1913, to Aug. 19, 1915, Sept. 6, 1916, to Sept. 19, 1934, water-stage recorder at site 50 ft (15 m) upstream at different datum.

REMARKS.--Records good except those for winter periods which are fair. Minor diversions. No regulation.

AVERAGE DISCHARGE.--54 years (water years 1910-15, 1931-78), 69.9 ft^3/s (1.980 m^3/s), 13.78 in/yr (350 mm/yr), 50,640 acre-ft/yr (62.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,580 ft^3/s (44.7 m^3/s) Jan. 15, 1974, gage height, 5.45 ft (1.661 m) from rating curve extended above 690 ft^3/s (19.5 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 3.0 ft^3/s (0.085 m^3/s) Nov. 21, 22, 1977 (result of freezeup).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft^3/s (5.66 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 2	1600	*1,080	30.6	*4.57	1.393	May 10	0100	207	5.86	2.42	0.738
Dec. 13	2100	650	18.4	3.66	1.116	May 21	2200	258	7.31	2.64	.805
Mar. 29	2200	330	9.35	2.90	.884	June 5	2300	300	8.50	2.80	.853

Minimum daily discharge, 3.0 ft^3/s (0.085 m^3/s) Nov. 21, 22, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	14	54	35	30	52	263	165	166	134	40	27
2	11	26	592	25	30	49	233	172	188	144	39	26
3	11	15	343	28	30	47	203	176	210	134	38	27
4	11	14	281	30	30	47	186	166	240	122	37	27
5	11	14	146	35	33	[illegible]	168	154	265	114	36	29
6	11	14	136	38	[illegible]	44	156	147	273	107	36	33
7	12	13	119	38	[illegible]	51	146	149	252	104	35	28
8	11	11	101	40	38	60	138	165	245	98	33	27
9	11	13	92	40	42	62	133	186	237	92	33	42
10	11	14	90	41	39	74	144	199	210	86	33	39
11	11	15	114	42	36	84	159	184	186	82	33	31
12	11	14	188	43	42	84	156	178	176	77	33	29
13	11	14	330	41	38	84	151	178	170	74	33	28
14	10	15	528	41	37	82	144	199	163	70	31	27
15	10	17	406	42	35	82	139	186	151	68	33	26
16	10	16	298	40	33	86	144	176	144	76	32	25
17	9.9	11	230	39	33	107	131	174	146	66	31	25
18	10	9.9	184	37	33	147	128	176	151	63	31	25
19	9.9	7.0	154	37	34	166	128	192	156	61	31	25
20	9.9	4.0	133	36	36	184	128	226	152	59	31	25
21	9.9	3.0	122	36	39	221	122	242	152	56	32	25
22	10	3.0	112	35	43	258	118	235	149	53	33	24
23	11	5.0	101	33	49	295	114	205	144	51	29	25
24	11	8.0	93	32	57	276	109	184	142	50	36	25
25	12	15	85	33	59	260	112	170	133	48	35	24
26	11	25	80	32	58	265	138	161	128	50	31	23
27	11	33	75	31	57	265	161	158	127	49	30	22
28	11	35	70	31	55	281	168	166	127	46	28	22
29	13	52	65	30	---	304	172	163	139	44	28	22
30	14	39	60	30	---	318	172	158	136	43	28	22
31	12	---	55	30	---	298	---	159	---	41	28	---
TOTAL	348.6	488.9	5269	1101	1119	4679	4564	5541	5258	2362	1017	805
MEAN	11.0	16.3	170	35.5	40.0	151	152	179	175	76.2	32.8	26.8
MAX	14	52	592	43	59	318	263	242	273	144	40	42
MIN	9.9	3.0	54	25	30	44	109	147	127	41	28	22
CFSM	.16	.24	2.47	.52	.58	2.19	2.21	2.60	2.54	1.11	.40	.39
IN.	.18	.26	2.84	.59	.60	2.53	2.46	2.99	2.84	1.28	.55	.43
AC-FT	676	970	10450	2180	2220	9280	9050	10990	10430	4690	2020	1600

CAL YR 1977 TOTAL 10443.3 MEAN 29.2 MAX 592 MIN 3.0 CFSM .42 IN 5.75 AC-FT 21110
WTR YR 1978 TOTAL 32544.5 MEAN 89.2 MAX 592 MIN 3.0 CFSM 1.30 IN 17.57 AC-FT 64550

12501000 SOUTH FORK AHTANUM CREEK AT CONRAD RANCH, NEAR TAMPICO, WA

LOCATION.--Lat 46°30'40", long 120°54'55", in SE¼ sec.23, T.12 N., R.15 E., Yakima County, Hydrologic Unit 17030003, on left bank at Conrad Ranch, 2.7 mi (4.3 km) southwest of Tampico, 20.3 mi (32.7 km) southwest of Yakima, and at mile 4.0 (6.4 km).

DRAINAGE AREA.--24.8 mi^2 (64.2 km^2).

PERIOD OF RECORD.--March 1915 to September 1978, discontinued, (no winter records prior to water year 1931). Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 312: 1910. WSP 902: 1939. WSP 1264: Drainage area. WSP 1316: 1943(M). WSP 1446: 1918(M).

GAGE.--Water-stage recorder. Concrete control Sept. 6, 1916, to December 1933, and since Nov. 28, 1962. Altitude of gage is 2,400 ft (732 m), from topographic map. Prior to Aug. 9, 1918, nonrecording gage at datum 1.00 ft (0.305 m) lower and Aug. 9, 1918, to Mar. 22, 1951, nonrecording gage at present datum.

REMARKS.--Records fair. Diversion for irrigation of about 55 acres (0.22 km^2) above station. No regulation.

AVERAGE DISCHARGE.--48 years (water years 1931-78), 20.0 ft^3/s (0.566 m^3/s), 14,490 acre-ft/yr (17.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,230 ft^3/s (34.8 m^3/s) Jan. 15, 1974, gage height, 5.39 ft (1.643 m), from rating curve extended above 140 ft^3/s (3.96 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 2.0 ft^3/s (0.057 m^3/s) Nov. 21, 1977, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft^3/s (1.42 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 2	1600	*279	7.90	*3.50	1.067	Mar. 23	1000	108	3.06	2.57	0.783
Dec. 13	2000	273	7.73	3.38	1.030	June 20	0200	62	1.76	2.23	0.680

Minimum daily discharge, 2.0 ft^3/s (0.057 m^3/s) Nov. 21, result of freeze up.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	4.6	5.0	12	9.3	21	68	35	38	28	13	8.7
2	3.0	6.9	127	8.0	9.3	20	58	35	41	30	13	8.5
3	3.0	4.7	87	8.6	9.9	19	50	36	44	27	12	9.0
4	3.0	4.3	53	9.0	10	19	46	34	50	26	12	8.8
5	2.8	4.6	38	9.2	11	18	41	31	56	25	12	9.4
6	2.9	4.4	35	9.5	14	17	39	29	61	23	12	11
7	3.0	4.6	32	10	17	19	36	28	60	22	12	9.7
8	2.8	4.2	29	10	17	22	34	29	58	21	11	9.2
9	3.6	4.4	28	10	20	27	32	33	57	21	11	13
10	3.0	3.9	27	11	18	33	33	35	53	20	11	11
11	2.9	2.8	33	12	17	36	35	35	49	20	11	9.5
12	2.9	2.7	37	11	16	35	34	32	46	19	11	8.4
13	2.5	2.8	139	11	16	35	33	35	43	19	11	7.7
14	2.5	3.2	192	11	16	34	32	39	41	18	11	7.1
15	2.7	3.7	129	12	15	34	31	39	40	18	11	6.4
16	2.8	3.2	84	11	14	36	33	38	38	19	11	6.1
17	2.8	2.8	63	11	14	42	30	38	36	18	10	5.9
18	2.8	2.5	48	10	14	56	29	38	36	18	10	5.8
19	3.0	2.4	39	10	14	64	30	39	35	17	9.9	5.5
20	3.6	2.2	33	9.9	14	69	30	43	35	16	10	5.5
21	3.6	2.0	30	10	15	80	28	47	34	16	11	5.5
22	3.4	2.2	28	9.8	17	92	28	49	34	15	11	6.3
23	3.7	2.3	26	9.9	19	102	27	48	33	15	9.9	7.2
24	4.0	2.5	24	9.9	21	93	26	45	33	15	11	7.4
25	4.5	3.0	23	9.9	22	85	26	41	32	14	11	7.3
26	4.3	3.5	21	9.9	22	84	29	39	30	15	9.8	7.0
27	4.2	4.0	20	9.4	22	81	32	38	29	15	9.5	7.0
28	4.3	4.1	19	9.3	22	80	34	39	28	14	9.1	7.2
29	5.3	7.2	20	9.3	---	83	36	38	29	14	9.0	7.4
30	5.3	5.2	18	9.3	---	84	36	38	28	14	8.9	7.4
31	4.2	---	16	9.3	---	78	---	38	---	13	9.0	---
TOTAL	104.8	110.9	1503.0	312.2	445.5	1598	1056	1161	1227	585	334.1	235.9
MEAN	3.38	3.70	48.5	10.1	15.9	51.5	35.2	37.5	40.9	18.9	10.8	7.86
MAX	5.3	7.2	192	12	22	102	68	49	61	30	13	13
MIN	2.5	2.0	5.0	8.0	9.3	17	26	28	28	13	8.9	5.5
AC-FT	208	220	2980	619	884	3170	2090	2300	2430	1160	663	468

CAL YR 1977 TOTAL 3254.7 MEAN 8.92 MAX 192 MIN 2.0 AC-FT 6460
WTR YR 1978 TOTAL 8673.4 MEAN 23.8 MAX 192 MIN 2.0 AC-FT 17200

12502500 AHTANUM CREEK AT UNION GAP, WA

LOCATION.--Lat 46°32'08", long 120°28'20", in SE¼SW¼ sec.8, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on left upstream wingwall of Union Pacific Railway bridge at Union Gap, 1.0 mi (1.6 km) south of town of Union Gap, and at mile 0.6 (110 km).

DRAINAGE AREA.--173 mi^2 (448 km^2).

PERIOD OF RECORD.--May to November 1904, August 1907 to July 1908, March to October 1910, April 1911 to September 1914, May 1951 to April 1953, August 1960 to current year. Published as "near Yakima" 1904, 1907-08, 1910-12. Records for water years 1913-14 are published in WSP 1286. Chemical data (irrigation seasons only) for 1975-76 water years.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 940 ft (287 m), from topographic map. Prior to Sept. 30, 1914, nonrecording gage at approximately same site at various datums. May 12, 1951 to Sept. 30, 1972, water-stage recorder at present site at datum 3.00 ft (0.914 m) higher.

REMARKS.--Records fair. Diversions and groundwater withdrawals for irrigation of about 9,000 acres (36 km^2) above station. Return from trans-basin irrigation flows contribute to base flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,100 ft^3/s (87.8 m^3/s) Jan. 16, 1974, gage height, 10.36 ft (3.158 m); no flow many days during September and October 1904.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 882 ft^3/s (25.0 m^3/s) Dec. 3, gage height, 6.05 ft (1.844 m); minimum, 2.6 ft^3/s (0.074 m^3/s) Aug. 9, gage height, 2.04 ft (0.622 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	19	18	54	81	129	420	191	116	78	12	21
2	16	8.8	99	45	78	119	381	182	123	101	11	18
3	15	8.9	779	56	78	112	336	175	134	102	10	19
4	12	11	326	67	76	114	300	176	158	94	10	22
5	11	11	189	95	81	111	279	168	178	87	8.8	23
6	7.9	12	156	88	99	107	257	156	203	72	6.5	27
7	6.9	15	142	81	129	104	244	148	210	68	3.5	33
8	6.5	11	116	71	189	134	218	146	196	60	3.7	33
9	8.0	11	102	82	210	136	200	154	189	54	3.7	34
10	8.7	11	96	127	173	158	191	167	178	50	4.6	43
11	7.8	10	104	107	140	182	205	173	162	47	5.9	37
12	7.9	10	119	91	130	178	198	164	149	42	7.6	33
13	8.0	10	187	84	121	173	191	156	128	38	8.4	35
14	7.7	10	583	87	112	171	182	173	116	35	7.6	34
15	7.6	10	639	235	112	167	173	167	110	33	9.7	36
16	7.9	10	474	215	111	167	178	167	109	38	13	36
17	8.0	10	384	156	108	182	175	158	99	42	12	35
18	8.0	10	306	146	104	225	164	156	91	38	12	37
19	7.7	10	223	138	102	278	156	156	90	34	12	35
20	8.2	10	194	132	101	279	155	173	85	34	12	36
21	8.2	10	171	127	102	324	154	196	82	31	15	34
22	9.0	10	158	127	116	363	148	210	82	29	16	31
23	10	10	144	107	124	414	142	200	79	28	16	31
24	9.0	10	134	100	144	456	138	182	74	25	18	32
25	9.3	11	121	96	140	426	136	164	81	20	22	35
26	8.2	11	114	93	146	414	140	148	71	22	21	34
27	7.6	15	86	88	140	411	173	138	66	23	19	32
28	7.7	14	80	87	134	405	191	136	60	22	18	33
29	8.4	12	97	84	---	429	196	138	63	21	18	33
30	9.3	11	100	82	---	452	198	130	78	20	18	31
31	11	---	83	81	---	452	---	121	---	18	20	---
TOTAL	288.3	323.7	6516	3241	3381	7774	6225	5089	3561	1406	375.0	953
MEAN	9.30	10.8	210	105	121	251	208	164	118	45.4	12.1	31.8
MAX	19	15	779	235	210	456	420	210	210	102	22	43
MIN	6.5	8.8	10	45	76	104	136	121	60	18	3.5	18
AC-FT	572	642	12920	6430	6710	15420	12350	10090	7060	2790	744	1890

CAL YR 1977 TOTAL 12254.4 MEAN 33.6 MAX 779 MIN 4.0 AC-FT 24310
WTR YR 1978 TOTAL 39123.0 MEAN 107 MAX 779 MIN 3.5 AC-FT 77600

12503950 YAKIMA RIVER AT PARKER, WA

LOCATION.--Lat 46°30'22", long 120°27'07", in NE¼NW¼ sec.28, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, at road bridge 0.7 mi (1.1 km) east of Parker, 0.8 mi (1.3 km) upstream from Sunnyside diversion dam, and at mile 104.6 (168.3 km).

DRAINAGE AREA.--3,660 mi^2 (9,480 km^2), approximately.

PERIOD OF RECORD.--Water years 1959-70, 1973 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 1959 to September 1970.
pH: August 1959 to September 1970.
WATER TEMPERATURE: August 1959 to September 1970.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is poor. Records prior to October 1972 collected at this site and published as 12505000 "near Parker."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)
OCT , 1977								
24...	1200	888	222	7.9	11.5	15	3	12.8
NOV								
14...	1220	1598	158	7.8	8.0	25	3	13.0
DEC								
12...	1200	6510	105	7.4	3.9	40	15	13.5
JAN , 1978								
09...	1120	3440	122	7.6	3.3	30	22	13.8
FEB								
20...	1250	2540	180	7.8	5.3	30	3	13.1
MAR								
13...	1230	3360	163	8.4	6.6	30	7	14.0
APR								
10...	1215	5000	111	7.7	10.0	25	8	12.2
MAY								
08...	1150	1980	110	8.1	12.4	20	5	11.3
JUN								
05...	1225	8200	86	7.7	15.0	15	20	10.8
JUL								
10...	1330	1420	110	7.8	16.0	10	4	12.3
AUG								
21...	1105	1810	95	7.8	16.6	15	15	9.7
SEP								
11...	1220	2140	118	7.6	15.3	15	4	10.4

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977								
24...	.23	.01	.20	.21	.41	.12	.07	.21
NOV								
14...	.15	.01	.11	.23	.34	.08	.04	.12
DEC								
12...	.16	.01	.10	.19	.29	.12	.04	.12
JAN , 1978								
09...	.23	.02	.24	.19	.43	.11	.06	.18
FEB								
20...	.48	.01	.12	.13	.25	.08	.06	.18
MAR								
13...	.23	.01	.10	.28	.38	.10	.04	.12
APR								
10...	.17	.01	.08	.19	.27	.06	.04	.12
MAY								
08...	.05	.01	.06	.25	.31	.06	.02	.06
JUN								
05...	.08	.00	.08	.22	.30	.15	.03	.09
JUL								
10...	.16	.01	.09	.21	.30	.07	.05	.15
AUG								
21...	.11	.01	.07	.13	.20	.06	.04	.12
SEP								
11...	.11	.01	.07	.18	.25	.04	.04	.12

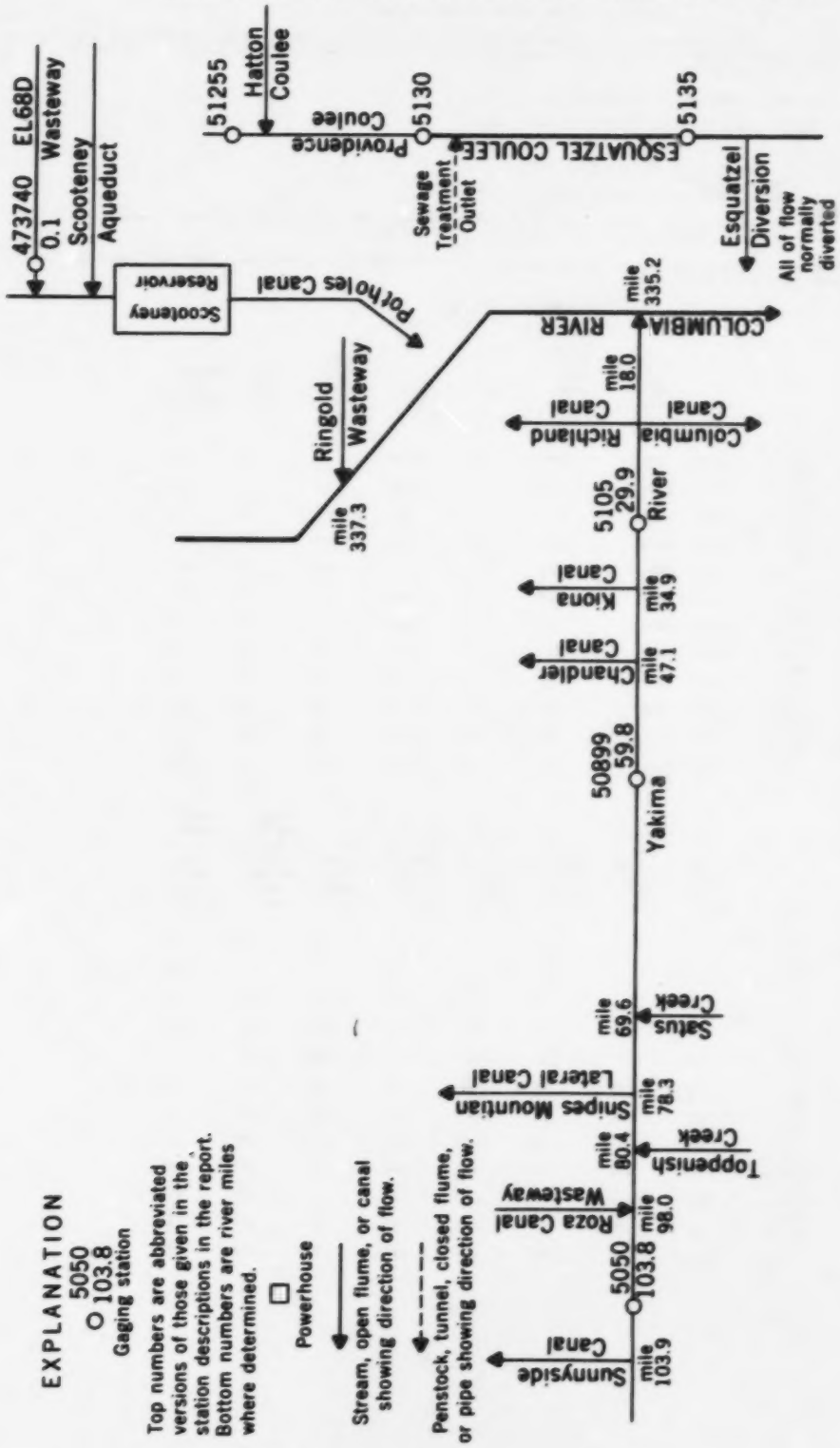

Figure 16. Gaging stations in Yakima River basin downstream from Sunnyside Canal and in Esquatzel Coulee.

12505000 YAKIMA RIVER NEAR PARKER, WA

LOCATION.--Lat 46°29'50", long 120°26'30", in NE¼SE¼ sec.28, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on left bank 500 ft (152 m) downstream from Sunnyside diversion dam, 1.3 mi (2.1 km) east of Parker, 3.1 mi (5.0 km) downstream from Ahtanum Creek, and at mile 103.8 (167.0 km).

DRAINAGE AREA.--3,660 mi² (9,479 km²).

PERIOD OF RECORD.--April 1908 to current year. Monthly discharge only for some periods published in WSP 1516. Prior to October 1916, published as "near Wapato."

REVISED RECORDS.--WSP 982: 1942. WSP 1122: 1934. WSP 1216: 1949-50. WSP 1516: 1955. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 885.89 ft (270.019 m) above mean sea level (Bureau of Reclamation bench mark). See WSP 2133 for history of changes prior to May 3, 1962. May 3, 1962 to Sept. 30, 1971, water-stage recorder at site 500 ft (152 m) downstream at present datum.

REMARKS.--Diversions above station for irrigation of about 200,000 acres (810 km²) above and 220,000 acres (890 km²) below station. During the irrigation season when Sunnyside Canal is carrying water, as much as 30 ft³/s (0.85 m³/s) depending on the stage of the canal, is released ahead of the fish screens and passes river and canal gaging stations unmeasured; Oct. 1, 1965, to Sept. 30, 1971, records include this flow. Flow regulated by diversions and by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,000 ft³/s (1,840 m³/s) Dec. 23, 1933, gage height, 15 ft (4.57 m), from floodmark; minimum, 0.0 ft³/s (0.017 m³/s) Apr. 22, June 11, 1977, gage height, 1.54 ft (0.469 m); discharge known to be less than 10 ft³/s (0.28 m³/s) for several days during latter part of irrigation season in most years prior to 1936, and many days during 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35,090 ft³/s (994 m³/s) Dec. 5, gage height, 13.97 ft (4.258 m); minimum, 1.0 ft³/s (0.028 m³/s) Oct. 30.

MONTHLY DISCHARGE OF YAKIMA RIVER AND CANALS NEAR PARKER, WASH.
WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Month	Runoff in acre-feet						Combined flow of Yakima River and canals (acre-feet)
	Yakima River near Parker	Roza Canal at mile 26.9	Union Gap Canal (estimated)	New Reservation Canal	Old Reservation Canal	Sunnyside Canal	
October	36,270	0	308	26,220	539	2,610	65,950
November	123,600	0	0	0	554	0	124,200
December	544,200	0	0	0	509	0	544,700
CAL YR 1977	883,000	215,700	13,030	597,200	3,710	374,200	2,087,000
January	223,500	0	0	0	496	0	224,000
February	166,200	0	0	0	450	0	166,600
March	316,600	9,020	0	8,580	516	10,720	345,400
April	272,400	30,820	695	44,160	244	39,440	387,700
May	170,500	44,960	1,680	103,500	0	57,400	378,000
June	306,400	57,700	2,060	118,500	0	69,290	554,000
July	36,110	60,360	1,940	116,300	0	74,820	289,500
August	59,900	56,220	1,880	110,700	0	72,850	301,600
September	61,170	36,920	1,570	79,060	0	52,020	230,700
WTR YR 1978	2,317,000	296,000	10,120	607,000	3,310	379,200	3,612,000

NOTE.--New reservation, Old Reservation, and Sunnyside Canals divert from river above station and below Union Gap. Roza and Union Gap Canals divert above Union Gap but records given herein show flow in these canals that reaches the valley below Union Gap. Records for Sunnyside Canal furnished by U.S.B.R. Records for Union Gap Canal estimated on basis of discharge measurements and records of flow at canal headworks. Combined flow represents flow of Yakima River that reaches valley below Union Gap.

12505000 YAKIMA RIVER NEAR PARKER, WA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	330	977	4930	3420	2280	2910	9410	3700	2140	1600	431	1330
2	5.0	1200	16200	3020	2130	2740	8220	3280	2460	1690	1370	1250
3	162	1960	33100	3350	2100	2570	7110	3200	3550	1640	950	1320
4	164	1800	19500	3850	2070	2550	6430	2790	5340	1070	1040	1340
5	105	1600	11300	3800	2140	2510	6370	2330	7170	584	932	1310
6	70	1470	8540	3740	2470	2670	5920	2010	8610	93	857	1390
7	163	1380	7280	3690	3100	2420	5500	1700	8290	223	785	1430
8	204	1400	6270	3680	4420	2500	5030	1520	6440	578	815	1380
9	161	1400	5530	3710	4790	2750	4700	1650	5820	488	1040	1360
10	134	1370	4990	4220	4680	2900	4620	1860	5380	288	717	1470
11	106	1460	5330	4150	3750	3150	5190	1850	4630	308	489	1480
12	91	1650	6440	3850	3400	3250	5380	1560	3850	234	533	1480
13	76	1670	7900	3770	3150	3200	5170	1360	2580	252	578	1330
14	690	1650	17000	3780	2950	3270	4820	1990	2230	366	661	1250
15	1060	1960	17200	5600	2840	3190	3710	2920	1980	446	783	1130
16	1030	2260	14500	5630	2730	3260	3550	2890	1940	671	879	1030
17	994	2100	11500	4800	2630	3400	3340	2480	2440	735	895	954
18	971	1980	9390	4400	2400	3790	3330	2110	2610	678	848	917
19	952	1730	7860	4230	2450	4460	3400	1940	2790	640	819	826
20	918	1540	6750	4270	2600	5000	3420	2350	2960	347	833	677
21	901	1260	5970	3630	2700	5360	3270	4660	2570	681	924	550
22	883	1310	5400	3480	2920	6350	3090	6610	1920	486	1020	432
23	868	1480	5540	3220	3050	7810	2840	6100	2280	349	1080	392
24	869	1370	5500	3010	3330	9570	2710	4680	2860	249	1280	544
25	889	1460	5160	2900	3200	9020	2330	3450	2840	268	1480	584
26	915	3460	4820	2810	3290	8920	2140	2940	2480	267	1510	410
27	903	4930	4270	2670	3240	9140	3160	2510	1140	877	1450	258
28	889	4130	4095	2600	3060	9460	4460	2430	1240	843	1330	475
29	903	4400	4160	2530	---	10100	4500	2500	1550	592	1330	1170
30	917	6010	4120	2460	---	10800	4170	2280	2000	522	1270	980
31	960	---	3880	2400	---	10500	---	2350	---	300	1290	---
TOTAL	18283.0	62307	274420	112710	83870	159600	137350	86000	104070	18213	30219	30949
MEAN	590	2077	8852	3636	2995	5148	4578	2774	3469	588	975	1028
MAX	1060	6010	33100	5630	4790	10800	9410	6610	8610	1690	1510	1480
MIN	5.0	977	3880	2400	2070	2420	2100	1360	1160	93	431	258
AC-FT	36260	123600	544300	223600	166400	316600	272400	170600	206400	36130	59940	61190

CAL YR 1977 TOTAL 445498.10 MEAN 1221 MAX 33100 MIN .00 AC-FT 883600
WTR YR 1978 TOTAL 1117891.00 MEAN 3063 MAX 33100 MIN 5.0 AC-FT 2217000

12508990 YAKIMA RIVER AT MABTON, WA

LOCATION.--Lat 46°13'53", long 119°59'54", in SW¼SW¼ sec.30, T.9 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on right bank under county highway bridge, at east boundary of Yakima Indian Reservation, 1.1 mi (1.8 km) north of Mabton, and at mile 59.8 (96.2 km).

DRAINAGE AREA.--5,359 mi² (13,880 km²).

PERIOD OF RECORD.--October 1970 to current year. Chemical data 1971, 1974, and March 1975 to September 1976 (irrigation seasons only).

GAGE.--Water-stage recorder. Altitude of gage is 643 ft (196.0 m), from topographic map. Prior to Oct. 1, 1976, at datum 10 ft (3.05 m) higher.

REMARKS.--Records good. Flow affected by storage in five reservoirs and by diversions above station for irrigation above and below station of about 424,000 acres (1,720 km²) and by return flow from irrigated area.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,200 ft³/s (1,050 m³/s) Jan. 17, 1974, gage height, 25.30 ft (7.711 m) present datum; minimum daily, 320 ft³/s (9.06 m³.s) Mar. 25, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,400 ft³/s (776 m³/s) Dec. 4, gage height, 22.41 ft (6.831 m); minimum discharge, 1,200 ft³/s (34.0 m³/s) Oct. 14, gage height, 10.62 ft (3.237 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1950	1460	5660	4000	3260	4180	11700	4900	3200	2860	1470	2530
2	1850	1460	5600	3300	3100	3950	10500	4340	2910	2990	1470	2500
3	1580	1700	12700	3400	3010	3730	9120	4050	3250	3220	2050	2450
4	1550	2190	24900	3900	3580	3530	8250	3880	4450	3300	1790	2510
5	1620	2160	23600	4380	3420	3520	7760	3560	5940	2830	1770	2530
6	1470	2020	13100	4400	3930	3420	7540	3150	7470	2520	1720	2560
7	1430	1840	8870	4280	4370	3580	7220	2800	8510	2200	1690	2600
8	1390	1780	7550	4210	6030	3760	6720	2500	7840	2090	1650	2620
9	1380	1800	6640	4220	6060	3900	6280	2210	6390	2190	1680	2610
10	1340	1800	5890	4720	6320	4060	5930	2340	6000	2100	1730	2670
11	1290	1800	5530	5050	5560	4220	5840	2510	5650	1940	1550	2760
12	1250	1880	6700	4720	4900	4400	6300	2420	4970	1830	1460	2800
13	1240	2000	7660	4530	4560	4390	6240	2210	4160	1700	1530	2760
14	1250	2000	11700	4500	4240	4420	6100	2210	3100	1570	1580	2640
15	1640	2050	17700	4890	4000	4410	5530	3060	2910	1570	1710	2530
16	1810	2300	19000	6900	3790	4310	4790	3770	2630	1580	1830	2430
17	1780	2490	16500	6160	3620	4470	4740	3620	2630	1760	1890	2350
18	1760	2440	12700	5820	3480	4790	4390	3200	3050	1760	1910	2310
19	1710	2260	9940	5570	3350	5250	4420	2890	3200	1720	1910	2260
20	1660	2100	8310	5490	3410	5720	4390	2670	3320	1650	1950	2150
21	1600	1950	7310	5260	3590	5920	4360	3330	3510	1540	2020	2040
22	1560	1760	6550	4760	3760	6780	4210	5690	2750	1630	2110	1920
23	1530	1820	6000	4560	4030	7830	4000	6780	2520	1590	2180	1870
24	1490	1900	6030	4240	4410	9290	3810	6100	2810	1560	2270	1830
25	1460	1880	5[illegible]	4060	4600	10600	3490	5050	3510	1470	2610	1900
26	1480	2080	5520	3910	4480	10400	3080	4080	3460	1400	2740	1890
27	1490	4110	5190	3760	4520	10500	3300	3670	3040	1480	2750	1760
28	1500	4630	4770	3610	4370	10600	4500	3290	2030	1780	2710	1640
29	1490	4260	4630	3510	---	10900	5300	3260	2080	1790	2630	1900
30	1420	5070	4670	3390	---	11600	5190	3270	2570	1650	2590	1960
31	1430	---	4620	3310	---	12200	---	3130	---	1580	2490	---
TOTAL	47400	68990	291380	138810	117750	190630	175000	110000	119940	60850	61440	69280
MEAN	1529	2300	9399	4478	4205	6149	5833	3548	3998	1963	1982	2309
MAX	1950	5070	24900	6900	6320	12200	11700	6780	8510	3300	2750	2800
MIN	1240	1460	4620	3300	3010	3420	3080	2210	2030	1400	1460	1640
AC-FT	94020	136800	578000	275300	233600	378100	347100	218200	237900	120700	121900	137400

CAL YR 1977 TOTAL 683357 MEAN 1872 MAX 24900 MIN 320 AC-FT 1355000
WTR YR 1978 TOTAL 1451470 MEAN 3977 MAX 24900 MIN 1240 AC-FT 2879000

12510500 YAKIMA RIVER AT KIONA, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 46°15'13", long 119°28'37", in SE¼NE¼ sec.19, T.9 N., R.27 E., Benton County, Hydrologic Unit 17030003, on left bank just upstream from abandoned highway bridge pier at Kiona, 0.1 mi (0.2 km) upstream from highway bridge, 3.6 mi (5.8 km) downstream from Corral Canyon Creek, 5.0 mi (8.0 km) downstream from intake of Kiona Canal, and at mile 29.9 (48.1 km).

DRAINAGE AREA.--5,615 mi² (14,543 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August to December 1895 (gage heights only, fragmentary), August 1896 to March 1915, February 1933 to current year.

REVISED RECORDS.--WSP 214: 1905. WSP 1122: 1934(M). WSP 1216: 1949-50. WSP 1286: 1907(M), 1909, 1936. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 454.41 ft (138.504 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1915, nonrecording gages at approximately same site and datum. Feb. 6, 1933, to July 26, 1934, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Diversions above station for irrigation of about 424,000 acres (1,720 km²). Some regulation by diversions and by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes. The Kiona Canal bypasses station with a mean flow of approximately 23 ft³/s (0.65 m³/s) for irrigation of about 1,100 acres (4.5 km²) below station. Diversion by the Kennewick Canal, which bypasses station, began in August 1956, and diverted 78,870 acre-ft (97.2 hm³) during the current water year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 67,000 ft³/s (1,900 m³/s) Dec. 23, 1933, gage height, 21.57 ft (6.575 m), from high-water marks; minimum observed, 105 ft³/s (2.97 m³/s) Sept. 11, 1906, gage height, 2.35 ft (0.716 m), datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,000 ft³/s (765 m³/s) Dec. 4, gage height, 16.11 ft (4.910 m); minimum, 1,260 ft³/s (35.7 m³/s) July 26, gage height, 3.24 ft (0.988 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2470	1700	6440	4860	3650	4600	12600	5440	3390	2840	1540	2780
2	2520	1660	5870	3800	3530	4390	11800	4930	3140	3030	1300	2720
3	2110	1750	11500	3200	3380	4150	10500	4390	3200	3170	1630	2680
4	1870	2400	23300	4520	3710	3950	9250	4250	4250	3500	1840	2670
5	1960	2480	24000	4950	3880	3880	8640	3890	5750	3210	1670	2730
6	1760	2310	15500	5020	3920	3820	8470	3550	7260	2820	1660	2720
7	1670	2190	10500	4800	4690	3870	8110	3170	8440	2500	1620	2770
8	1610	2040	8790	4690	5870	3910	7570	2870	8650	2230	1580	2840
9	1590	2060	7620	4690	6650	4230	7060	2560	7150	2260	1540	2870
10	1520	2070	6800	4900	6670	4330	6670	2460	6420	2290	1650	2898
11	1480	2050	6290	5500	6280	4530	6410	2690	6090	2160	1820	3000
12	1440	2080	6960	5370	5460	4750	6770	2770	5520	1980	1640	3090
13	1420	2270	8010	5080	5060	4870	6880	2630	4820	1840	1660	3110
14	1390	2300	11100	5010	4710	4820	6660	2480	3680	1670	1720	3030
15	1690	2310	16600	5130	4440	4820	6310	2990	3150	1560	1840	2890
16	2060	2490	18900	7020	4220	4740	5410	3980	2930	1550	2040	2730
17	2050	2810	17300	6940	4030	4800	5180	4150	2710	1600	2100	2650
18	2020	2770	14300	6410	3880	5110	4890	3820	2980	1740	2030	2610
19	1980	2580	11500	6160	3740	5510	4800	3390	3280	1690	2060	2550
20	1920	2410	9610	5980	3740	6040	4810	3110	3420	1640	2080	2460
21	1840	2250	8380	5900	3900	6320	4830	3310	3510	1520	2170	2360
22	1800	1990	7390	5280	4000	6990	4620	5380	3340	1410	2430	2280
23	1770	1970	6700	5120	4300	8040	4440	7140	2510	1500	2540	2090
24	1710	2130	6620	4730	4630	9200	4180	6940	2660	1480	2460	2040
25	1660	2090	6470	4500	5040	10600	3950	5780	3250	1350	2750	2080
26	1670	2120	6130	4340	4880	11100	3590	4690	3590	1300	3110	2110
27	1690	3910	5810	4150	4930	11100	3360	4120	3360	1280	3190	2030
28	1690	5330	5390	3990	4820	11200	4280	3740	2500	1460	3040	1860
29	1680	4870	5120	3900	---	11300	5460	3590	2020	1900	2930	1860
30	1680	5170	5190	3820	---	11700	5680	3610	2300	1820	2860	2140
31	1600	---	5160	3710	---	12500	---	3420	---	1740	2740	---
TOTAL	55320	76560	309170	153470	128010	201170	193180	121240	125270	62040	65240	76480
MEAN	1785	2552	9973	4951	4572	6489	6439	3911	4176	2001	2105	2549
MAX	2520	5330	24000	7020	6670	12500	12600	7140	8650	3500	3190	3110
MIN	1390	1660	5120	3200	3380	3820	3360	2460	2020	1280	1300	1860
AC-FT	109700	151900	613200	304400	253900	399000	383200	240500	248500	123100	129400	151700

CAL YR 1977 TOTAL 720186 MEAN 1973 MAX 24000 MIN 225 AC-FT 1428000
WTR YR 1978 TOTAL 1567150 MEAN 4294 MAX 24000 MIN 1280 AC-FT 3108000

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--Water quality data obtained at the highway bridge 0.1 mi (0.2 km) downstream from gage.

PERIOD OF RECORD.--Water years 1953 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1952 to September 1969 (composite samples), October 1969 to September 1977.
WATER TEMPERATURES: December 1952 to current year.

REMARKS.--Water temperatures collected once daily by observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 29.0°C July 18, 1960, July 12, 1961; minimum, 0.0°C on several days during winter months most years.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum observed, 27.0°C July 23-25, Aug. 2, 7, 9; minimum observed, 0.0°C Jan. 1-4.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT , 1977												
18...	1405	2000	370	8.1	13.4	6	--	--	K12	K210000	140	0
NOV												
08...	1400	2050	265	7.6	7.1	4	--	--	K40	9300	110	0
DEC												
19...	1120	11400	145	7.2	3.4	35	--	12.7	K300	15000	57	0
JAN , 1978												
17...	1440	6630	196	7.4	4.3	100	--	11.7	1500	>400000	73	0
FEB												
08...	1245	6110	214	8.1	5.9	30	--	11.6	190	48000	81	0
MAR												
17...	1000	4740	201	7.4	8.0	4	--	11.3	23	4200	75	0
APR												
18...	1315	4830	162	8.2	11.6	5	--	9.3	46	K1600	64	0
MAY												
17...	1125	4110	165	7.8	14.7	7	--	9.9	220	6700	73	5
JUN												
01...	1430	3450	184	7.8	18.0	--	6.7	9.3	92	3200	90	8
JUL												
12...	1140	1960	260	8.6	21.6	--	5.0	9.9	78	--	110	1
AUG												
08...	1245	1560	262	8.6	24.8	--	5.1	10.1	36	<1	100	0
SEP												
05...	1630	2740	250	7.8	19.9	--	4.2	9.4	72	120	110	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT , 1977												
18...	38	12	23	25	.8	3.9	180	0	150	2.3	23	8.9
NOV												
08...	26	10	17	25	.7	3.1	140	0	110	5.6	16	6.4
DEC												
19...	14	5.4	9.1	25	.5	2.1	73	0	60	7.4	10	3.7
JAN , 1978												
17...	18	6.9	14	29	.7	2.1	94	0	77	6.0	20	11
FEB												
08...	19	8.2	14	27	.7	2.4	110	0	90	1.4	12	6.2
MAR												
17...	18	7.2	12	25	.6	2.0	100	0	82	6.4	6.0	5.1
APR												
18...	16	5.9	9.5	24	.5	1.8	85	0	70	.9	6.0	4.0
MAY												
17...	18	6.9	9.8	22	.5	2.2	83	0	68	2.1	11	5.2
JUN												
01...	25	6.8	12	22	.6	2.3	--	--	82	--	11	21
JUL												
12...	28	9.9	16	23	.7	3.0	--	--	110	--	20	6.3
AUG												
08...	26	9.4	16	24	.7	3.1	--	--	110	--	18	6.7
SEP												
05...	27	9.3	15	23	.6	2.8	--	--	110	--	14	5.7

K Results based upon colony counts outside the ideal range.

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)
OCT , 1977												
18...	.2	29	208	227	.27	1080	22	1.1	.03	--	--	--
NOV												
08...	.2	24	168	172	.23	930	41	.84	.00	--	--	--
DEC												
19...	.1	22	92	102	.13	2830	62	.43	.00	--	--	--
JAN , 1978												
17...	.2	21	143	140	.19	2560	256	.37	.21	--	--	--
FEB												
08...	.1	27	133	143	.18	2190	122	.82	.04	.31	.35	.00
MAR												
17...	.1	24	122	124	.17	1560	17	.81	.01	.38	.39	.37
APR												
18...	.1	20	107	105	.15	1400	51	.42	.01	.41	.42	.41
MAY												
17...	.1	19	105	113	.14	1170	32	.35	.13	.30	.43	.12
JUN												
01...	.1	18	136	146	.19	1270	14	.25	.01	--	--	--
JUL												
12...	.2	23	165	173	.22	873	8	1.1	.00	.49	.49	.14
AUG												
08...	.2	22	173	168	.24	729	--	.82	.03	.42	.45	.28
SEP												
05...	.2	22	160	162	.22	1180	33	.94	.02	.42	.44	.07

DATE	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1977											
18...	.20	--	--	.13	.09	--	--	--	21	113	92
NOV											
08...	.24	--	--	.09	.08	1.5	--	--	9	50	89
DEC											
19...	.09	--	--	.15	.06	--	--	--	125	3850	68
JAN , 1978											
17...	.35	--	--	.57	.20	--	93	2.1	252	4510	94
FEB											
08...	.36	1.2	5.2	.24	.12	7.5	--	--	138	2280	89
MAR											
17...	.02	1.2	5.3	.10	.05	3.0	--	--	21	269	88
APR											
18...	.01	.84	3.7	.07	.01	--	1.9	1.6	21	274	64
MAY											
17...	.31	.78	3.5	.14	.08	2.6	--	--	37	411	80
JUN											
01...	.36	--	--	.09	.05	2.7	--	--	34	317	92
JUL											
12...	.35	1.6	7.0	.07	.06	--	6.8	.4	23	122	23
AUG											
08...	.17	1.3	5.6	.09	.08	4.1	--	--	24	101	97
SEP											
05...	.37	1.4	6.1	.11	.09	2.8	--	--	36	266	91

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)
OCT , 1977										
18...	1405	3	1	2	400	400	0	10	8	2
JAN , 1978										
17...	1440	2	0	2	0	0	0	1	0	1
APR										
18...	1315	1	0	1	200	100	100	1	0	1
JUL										
12...	1140	3	1	2	300	100	200	--	--	--

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT . 1977										
18...	20	20	0	<50	<50	0	10	9	1	560
JAN . 1978										
17...	10	10	0	4	4	0	22	18	4	11000
APR										
18...	0	0	0	0	0	0	4	0	4	960
JUL										
12...	10	0	10	2	0	2	8	3	5	730

DATE	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)
OCT . 1977										
18...	--	40	<100	<80	12	70	60	10	.0	.0
JAN . 1978										
17...	--	100	15	9	6	280	280	0	.1	.1
APR										
18...	880	40	13	9	4	30	30	0	.0	.0
JUL										
12...	700	30	--	--	--	60	60	0	.0	.0

DATE	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
OCT . 1977										
18...	.0	0	0	0	<10	<10	0	50	40	6
JAN . 1978										
17...	.0	1	1	0	0	0	0	60	30	30
APR										
18...	.0	0	0	0	0	0	0	30	10	20
JUL										
12...	.0	0	0	0	0	0	0	30	0	30

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ATRAZINE, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
NOV . 1977									
08...	1400	ND	ND	ND	ND	ND	ND	ND	ND
FEB . 1978									
08...	1245	ND	ND	--	ND	ND	ND	ND	ND
MAY									
17...	1125	ND	ND	ND	ND	ND	ND	ND	ND
AUG									
08...	1245	ND	ND	ND	ND	ND	ND	ND	ND

DATE	DIELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
NOV . 1977									
08...	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB . 1978									
08...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY									
17...	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG									
08...	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	METHYL TRITHION, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMAZINE TOTAL COULSON COND. (UG/L)
NOV . 1977								
08...	ND	ND	ND	ND	ND	ND	ND	ND
FEB . 1978								
08...	ND	ND	ND	ND	--	--	--	--
MAY								
17...	ND	ND	ND	ND	--	--	--	ND
AUG								
08...	ND	ND	ND	ND	--	--	--	ND

ND None detected.

12510500 YAKIMA RIVER AT KIONA, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	NOV 8,77	MAR 17,78	MAY 17,78	JUN 1,78	JUL 12,78
TIME	1400	1000	1125	1430	1145
TOTAL CELLS/ML	1700	2100	5800	2700	9100
DIVERSITY: DIVISION	1.1	1.3	1.2	1.1	1.6
.CLASS	1.1	1.3	1.2	1.1	1.6
..ORDER	1.8	1.3	2.0	1.8	2.2
...FAMILY	2.9	2.7	3.1	3.0	3.4
....GENUS	2.9	2.8	3.1	3.7	3.8

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	180	10	--	-	--	-	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	--	-	--	-	620	7
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	--	-	--	-	620	7
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	--	-	--	-	--	-	78	1
....CHODATELLA	--	-	--	-	--	-	--	-	*	0
....DICTYOSPHAERIUM	--	-	--	-	--	-	57	2	1900#	21
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	160	2
....SELENASTRUM	24	1	--	-	--	-	--	-	--	-
....TETRAEDRON	12	1	--	-	--	-	--	-	*	0
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	--	-	110	4	--	-
....SCENEDESMUS	240	14	--	-	91	2	340	13	620	7
....TETRASTRUM	--	-	--	-	--	-	57	2	120	1
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	99	5	140	2	14	1	160	2
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	580#	33	--	-	770	13	620#	23	1500#	17
....MELOSIRA	--	-	--	-	--	-	29	1	120	1
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	24	1	180	9	--	-	57	2	--	-
....COCCONEIS	12	1	--	-	--	-	43	2	160	2
....RHOICOSPHENIA	12	1	40	2	91	2	29	1	78	1
...CYMBELLACEAE										
....AMPHORA	12	1	--	-	--	-	--	-	--	-
....CYMBELLA	--	-	160	8	91	2	72	3	*	0
....EPITHEMIA	--	-	--	-	--	-	14	1	--	-
...DIATOMACEAE										
....DIATOMA	230	13	--	-	1000#	17	86	3	*	0
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	--	-	--	-	310	12	--	-
....FRAGILARIA	--	-	180	9	--	-	110	4	--	-
....HANNAEA	--	-	--	-	--	-	14	1	--	-
....SYNEDRA	12	1	--	-	91	2	72	3	190	2
...GOMPHONEMATACEAE										
....GOMPHONEMA	12	1	320#	15	140	2	29	1	78	1
...NAVICULACEAE										
....NAVICULA	130	8	160	8	1100#	20	57	2	350	4
...NITZSCHIACEAE										
....NITZSCHIA	180	10	140	7	270	5	390	14	350	4
...SURIRELLACEAE										
....SURIRELLA	--	-	--	-	46	1	14	1	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOMONADACEAE										
....CRYPTOMONAS	--	-	--	-	--	-	--	-	78	1
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..HORMOGONALES										
...OSCILLATORIACEAE										
....PHORMIDIUM	73	4	--	-	--	-	--	-	--	-
..CHROCOCCALES										
...CHROCOCCACEAE										
....ANACYSTIS	--	-	--	-	1100#	20	--	-	230	3
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	890	10
....APHANIZOMENON	*	0	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	770	13	--	-	--	-
....OSCILLATORIA	--	-	790#	38	--	-	140	5	--	-
..CHROCOCCALES										
...CHROCOCCACEAE										
....GOMPHOSPHAERIA	--	-	--	-	--	-	--	-	580	6

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

12510500 YAKIMA RIVER AT KIONA, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	NOV 8,77		MAR 17,78		MAY 17,78		JUN 1,78		JUL 12,78	
TIME	1400		1000		1125		1430		1145	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	--	-	14	1	--	-
....PHACUS	--	-	20	1	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	44	1	--	-	78	1

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%
Additional phytoplankton data available from District office in Tacoma.

DATE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	LENGTH OF EXPO-SURE (DAYS)
JAN , 1978						
17...	1440	.000	.236	.000	.000	29
JUL						
12...	1140	.315	.709	.230	.000	41

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	9.5	5.0	.0	3.5	6.5	11.0	13.0	18.0	22.0	26.5	20.0
2	13.0	9.5	5.5	.0	4.0	5.5	11.0	13.5	18.5	18.0	27.0	21.5
3	13.5	6.0	7.5	.0	4.0	5.0	10.5	15.5	17.0	18.0	26.5	21.0
4	12.0	8.5	5.5	.0	5.5	4.0	9.5	13.0	20.0	18.0	26.0	21.0
5	12.0	8.5	4.5	1.0	5.5	4.5	10.0	15.0	18.0	19.0	26.5	21.0
6	12.5	9.0	5.0	1.5	6.0	4.5	9.5	15.0	18.0	21.0	26.5	20.0
7	12.0	7.0	4.5	2.0	5.5	6.0	9.0	18.0	18.0	24.0	27.0	17.0
8	12.0	7.0	3.5	2.0	5.5	7.0	9.5	18.0	18.0	23.5	26.0	18.0
9	13.0	7.0	3.0	3.0	6.0	7.0	11.5	18.0	18.0	24.0	27.0	16.5
10	13.0	7.0	3.0	3.5	6.0	7.5	12.0	17.0	16.0	22.0	26.5	17.0
11	12.0	7.0	5.0	3.5	5.0	9.0	12.0	16.5	16.0	22.0	24.0	16.5
12	12.5	6.0	5.0	4.0	6.0	6.5	12.0	16.0	16.0	24.5	21.0	19.0
13	13.0	8.0	5.5	4.0	5.5	6.5	11.0	15.0	17.0	25.0	21.0	16.0
14	12.5	8.0	6.0	4.0	6.0	8.5	11.0	16.0	18.5	25.0	21.0	16.5
15	12.5	8.0	6.0	4.5	6.0	8.0	11.0	16.5	19.5	25.0	20.5	17.0
16	12.5	7.5	5.0	4.0	6.0	9.0	10.0	14.0	20.5	25.0	21.0	17.0
17	12.0	7.0	5.0	4.5	5.0	9.5	10.0	16.0	19.5	24.0	21.0	16.0
18	12.5	7.0	4.5	4.0	5.5	10.0	11.0	17.0	19.0	25.0	20.0	16.0
19	12.0	4.0	3.5	5.5	6.0	11.0	12.0	17.0	19.0	24.0	20.0	16.0
20	12.5	2.0	3.5	5.5	6.0	11.5	12.0	17.5	19.5	24.5	19.5	16.0
21	12.0	1.0	4.0	6.0	6.0	11.0	11.0	17.5	19.0	25.0	19.0	16.0
22	12.0	1.5	3.0	5.5	6.0	11.5	10.5	16.5	19.0	26.0	19.0	16.0
23	12.0	2.0	2.5	4.5	6.0	11.0	10.5	14.0	19.0	27.0	19.0	16.0
24	12.0	1.5	2.5	3.5	6.0	10.0	10.5	13.0	19.0	27.0	19.0	16.0
25	12.0	4.0	2.5	3.5	6.0	10.0	12.0	13.0	19.0	27.0	18.5	16.5
26	11.5	4.5	2.5	4.0	6.0	10.0	13.0	15.0	20.0	25.0	18.0	16.5
27	11.0	5.5	1.5	4.0	6.0	10.0	12.0	16.0	22.0	24.5	18.5	16.5
28	10.5	4.5	1.5	4.5	7.0	10.5	13.0	16.5	24.0	25.0	19.0	---
29	11.0	5.5	1.5	5.0	---	11.0	12.0	18.0	24.0	22.5	20.0	---
30	10.0	5.0	1.5	4.0	---	12.0	13.0	15.0	24.0	25.0	20.0	---
31	9.5	---	1.0	4.0	---	11.5	---	16.0	---	26.0	20.0	---
MEAN	12.0	6.0	4.0	3.5	5.5	8.5	11.0	15.5	19.0	23.5	22.0	17.5

WTR YR 1978 MEAN 12.5 MAX 27.0 MIN .0

12510500 YAKIMA RIVER AT KIONA, WA--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	2470	56	373	1760	22	101	6440	223	3880
2	2520	56	381	1660	17	76	5870	205	3250
3	2110	36	205	1750	13	61	11500	1040	32400
4	1870	29	146	2400	35	227	23300	1750	110000
5	1960	33	175	2480	23	154	24000	674	43700
6	1760	21	100	2310	20	125	15500	370	15500
7	1670	20	90	2190	12	71	10500	305	8650
8	1610	18	78	2040	13	72	8790	190	4510
9	1590	15	64	2060	13	72	7620	105	2160
10	1520	14	57	2070	14	78	6800	72	1320
11	1480	13	52	2050	14	77	6290	60	1020
12	1440	13	51	2080	21	118	5960	93	1750
13	1420	14	73	2270	33	202	6010	241	5210
14	1390	20	75	2300	25	155	11100	372	11100
15	1690	33	151	2310	25	156	16600	460	20600
16	2060	36	200	2690	21	141	18900	365	14600
17	2050	35	194	2810	24	182	17300	235	11000
18	2020	24	131	2770	17	127	14300	170	6560
19	1980	32	171	2580	10	70	11500	150	4660
20	1920	27	140	2410	8	52	9610	106	2750
21	1840	19	94	2250	8	49	6300	81	1820
22	1800	20	97	1990	8	43	7390	75	1500
23	1770	18	86	1970	33	176	6700	45	814
24	1710	17	78	2130	23	132	6620	46	822
25	1660	16	72	2090	8	45	6470	52	908
26	1670	18	81	2120	6	34	6130	52	861
27	1690	15	68	3910	122	1290	5810	42	659
28	1690	11	50	5330	195	2810	5390	37	538
29	1680	13	59	4870	120	1580	5120	37	511
30	1680	16	73	5170	107	1490	5190	28	392
31	1600	11	48	---	---	---	5160	39	543
TOTAL	55320	---	3713	76560	---	9966	309170	---	317988

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	4860	36	472	3650	15	148	4600	18	224
2	3800	80	821	3530	12	114	4390	20	237
3	3200	83	717	3300	15	137	4150	16	179
4	4520	72	879	3710	40	401	3950	13	139
5	4950	53	700	3800	35	367	3800	9	94
6	5020	40	542	3920	90	953	3820	9	93
7	4880	46	596	4690	127	1610	3670	12	125
8	4690	45	570	5870	142	2250	3910	12	127
9	4690	38	481	6650	143	2570	4230	12	137
10	4900	52	688	6670	127	2290	4330	19	222
11	5500	123	1830	6280	102	1730	4530	28	342
12	5370	93	1350	5460	46	678	4750	46	590
13	5060	50	686	5060	35	478	4870	49	644
14	5010	54	730	4710	24	305	4820	35	455
15	5130	100	1390	4440	21	252	4820	26	338
16	7020	240	4550	4220	16	182	4740	22	282
17	6940	205	3840	4030	14	152	4800	23	298
18	6410	105	1820	3880	15	157	5110	36	497
19	6160	79	1310	3740	18	182	5510	61	907
20	5980	64	1030	3740	22	222	6040	72	1170
21	5900	61	972	3900	22	232	6320	85	1450
22	5280	58	827	4080	27	292	6990	125	2360
23	5120	44	608	4300	53	615	6040	215	4670
24	4730	22	281	4630	50	625	9200	315	7820
25	4500	23	279	5040	36	490	10600	415	11900
26	4340	20	234	4880	30	395	11100	290	8690
27	4150	18	202	4930	30	399	11100	210	6290
28	3990	17	183	4820	22	286	11200	200	6050
29	3900	17	179	---	---	---	11300	222	6770
30	3820	17	175	---	---	---	11700	234	7390
31	3710	18	180	---	---	---	12500	220	7420
TOTAL	153470	---	29130	128810	---	18512	201170	---	77910

12510500 YAKIMA RIVER AT KIONA, WA--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	12600	203	6910	5440	42	617	3390	40	366
2	11800	197	6280	4930	20	266	3140	37	314
3	10500	138	3910	4390	26	308	3200	56	484
4	9250	100	2500	4250	22	252	4250	110	1260
5	8640	86	2010	3890	19	200	5750	123	1910
6	8470	78	1780	3550	14	134	7260	180	3530
7	8110	61	1340	3170	18	154	8440	195	4440
8	7570	58	1190	2870	14	108	8650	170	3970
9	7060	70	1330	2560	14	97	7150	125	2410
10	6670	60	1080	2460	20	133	6420	96	1660
11	6410	75	1300	2690	18	131	6090	84	1380
12	6770	65	1190	2770	20	150	5520	70	1040
13	6880	48	892	2630	19	135	4820	47	612
14	6660	43	773	2480	23	154	3680	43	427
15	6310	35	596	2990	29	234	3150	39	332
16	5410	34	497	3980	43	462	2930	32	253
17	5180	34	476	4150	40	448	2710	39	285
18	4890	26	343	3820	34	351	2980	41	330
19	4800	25	324	3390	90	824	3280	38	337
20	4810	35	455	3110	107	898	3420	44	406
21	4830	24	313	3310	101	903	3510	42	398
22	4620	19	237	5380	130	1890	3340	43	388
23	4440	18	216	7140	142	2740	2510	45	305
24	4180	17	192	6940	108	2020	2660	44	316
25	3950	20	213	5780	60	936	3250	40	351
26	3590	18	174	4690	45	570	3590	38	368
27	3360	20	181	4120	39	434	3360	27	245
28	4280	29	335	3740	32	323	2500	20	135
29	5460	53	781	3590	32	310	2020	22	120
30	5680	42	644	3610	30	292	2300	21	130
31	---	---	---	3420	27	249	---	---	---
TOTAL	193180	---	38462	121240	---	16723	125270	---	28502

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	2840	68	521	1540	22	91	2700	44	321
2	3030	163	1330	1300	22	77	2720	43	316
3	3170	156	1340	1630	24	106	2680	80	579
4	3500	101	954	1840	32	159	2670	40	288
5	3210	75	650	1670	30	135	2730	35	258
6	2820	38	289	1660	32	143	2720	62	455
7	2500	34	229	1620	30	131	2770	55	411
8	2230	29	175	1580	26	111	2840	81	621
9	2260	34	207	1540	36	150	2870	39	302
10	2290	26	161	1650	34	151	2890	89	694
11	2160	30	175	1820	32	157	3000	47	381
12	1980	22	118	1640	22	97	3090	30	250
13	1840	18	89	1660	31	139	3110	38	319
14	1670	19	86	1720	30	139	3030	36	295
15	1560	23	97	1840	31	154	2890	27	211
16	1550	15	63	2040	37	204	2730	30	221
17	1600	20	86	2100	30	170	2650	23	165
18	1740	57	268	2030	36	197	2610	22	155
19	1690	41	187	2060	41	228	2550	18	124
20	1640	26	115	2080	16	90	2460	15	100
21	1520	22	90	2170	42	246	2360	18	115
22	1410	28	107	2430	63	413	2200	18	107
23	1500	23	93	2540	68	466	2090	16	90
24	1480	22	88	2460	63	418	2040	18	99
25	1350	20	73	2750	69	512	2080	17	95
26	1300	24	84	3110	73	613	2110	17	97
27	1280	25	86	3190	58	500	2030	14	77
28	1460	30	118	3040	53	435	1860	16	80
29	1900	38	195	2930	46	364	1860	14	70
30	1820	30	147	2860	46	355	2140	16	92
31	1740	30	141	2740	38	281	---	---	---
TOTAL	62040	---	8362	65240	---	7432	76480	---	7388
YEAR	1567150		564088						

12512550 PROVIDENCE COULEE NEAR CUNNINGHAM, WA

LOCATION.--Lat 46°48'11", long 118°48'55", in SE¼NE¼ sec.8, T.15 N., R.32 E., Adams County, Hydrologic Unit 17020016, on right bank 0.5 mi (0.8 km) downstream from Gillis Road, 0.8 (1.3 km) upstream from State Highway 26, and 1.4 mi (2.3 km) southwest of Cunningham.

DRAINAGE AREA.--52.1 mi^2 (134.9 km^2).

PERIOD OF RECORD.--October 1977 to September 1978.

GAGE.--Water-stage recorder. Altitude of gage is 1,115 ft (340 m), from topographic map.

REMARKS.--Records poor. No known diversions. An undetermined amount of ground water withdrawals for irrigation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge not determined; no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	2.0	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.05	.10	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.30	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	2.20	.00	.00	.00	.00	.20	.60	.00	.00
MEAN	.000	.000	.000	.071	.000	.000	.000	.000	.007	.019	.000	.000
MAX	.00	.00	.00	2.0	.00	.00	.00	.00	.15	.30	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	4.4	.00	.00	.00	.00	.4	1.2	.00	.00

WTR YR 1978 TOTAL 3.00 MEAN .008 MAX 2.0 MIN .00 AC-FT 6.0

12513000 ESQUATZEL COULEE AT CONNELL, WA

LOCATION.--Lat 46°39'31", long 118°52'03", in SE¼NW¼ sec.36, T.14 N., R.31 E., Franklin County, Hydrologic Unit 17020016, on right bank 500 ft (152 m) upstream from outlet of local sewage treatment plant, at Connell, 3.0 mi (4.8 km) downstream from left bank tributary, and 8.4 mi (13.5 km) downstream from Hatton Coulee.

DRAINAGE AREA.--234 mi^2 (606 km^2).

PERIOD OF RECORD.--January 1953 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 820.68 ft (250.143 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 7, 1959, at site 0.3 mi (0.5 km) upstream at different datum, and Aug. 7, 1959, to July 8, 1967, at site 900 ft (274 m) downstream at present datum.

REMARKS.--Records fair. No diversion. Published flows August 1959 to September 1964 include effluent from sewage treatment plant 500 ft (152 m) downstream; records adjusted to exclude effluent October 1964 to June 1967.

AVERAGE DISCHARGE.--26 years, 1.10 ft^3/s (0.0312 m^3/s), 797 acre-ft/yr (0.98 hm^3/yr), adjusted for effluent from sewage treatment plant 1959-64.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,560 ft^3/s (157 m^3/s) Feb. 21, 1956, gage height, 12.68 ft (3.865 m); no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1.1 ft^3/s (0.031 m^3/s) July 3, gage height, 5.19 ft (1.582 m); no flow during most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.11	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.13	.00	.00	.00	.00	.00	.00	.05	.00	.00
MEAN	.000	.000	.004	.000	.000	.000	.000	.000	.000	.002	.000	.000
MAX	.00	.00	.11	.00	.00	.00	.00	.00	.00	.05	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.3	.00	.00	.00	.00	.00	.00	.10	.00	.00

CAL YR 1977 TOTAL 0.19 MEAN .001 MAX .11 MIN .00 AC-FT .4
WTR YR 1978 TOTAL 0.18 MEAN .000 MAX .11 MIN .00 AC-FT .4

12513500 ESQUATZEL COULEE AT ELTOPIA, WA

LOCATION.--Lat 46°27'45", long 119°00'40", in SW¼SE¼ sec.2, T.11 N., R.30 E., Franklin County, Hydrologic Unit 17020016, on left bank 50 ft (15 m) upstream from Burlington Northern railroad bridge at Eltopia, and 8.2 mi (13.2 km) upstream from Esquatzel Diversion.

DRAINAGE AREA.--551 mi^2 (1,427 km^2), of which 168 mi^2 (435 km^2) in the vicinity of Sulphur Lake is noncontributing.

PERIOD OF RECORD.--January 1953 to current year.

REVISED RECORDS.--WSP 1933: Drainage area. WDR WA-75-1: 1974.

GAGE.--Water-stage recorder. Altitude of gage is 580 ft (177 m), from topographic map.

REMARKS.--Records poor. Considerable regulation by natural pondage in Esquatzel Coulee near Mesa 9 mi (14.5 km) upstream and irrigation waste water inflows. Upstream diversions for irrigation. Summer flow started in August 1971. Prior to August 1971 most of the runoff above station entered a sump maintained by the Bureau of Reclamation near Mesa. Since removal of the sump, there has been continuous flow at the station except for intermittent periods.

AVERAGE DISCHARGE.--18 years prior to removal of U.S. Bureau of Reclamation sump (water years 1953-70) 0.88 ft^3/s (0.0249 m^3/s), 638 acre-ft/yr (0.789 hm^3/yr).
8 years (water years 1971-78), 17.2 ft^3/s (0.487 m^3/s), 12,460 acre-ft/yr (15.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,740 ft^3/s (106 m^3/s) Feb. 22, 1956, gage height, 18.23 ft (5.557 m); no flow most of time Jan. 1953 to September 1971; no flow at times in 1972, 1976-1978 water years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 37 ft^3/s (1.05 m^3/s) Aug. 27; gage height, 6.99 ft (2.131 m), no flow Apr. 20, 21, May 24-30, June 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	22	14	11	11	7.2	2.9	2.4	2.7	12	22	.25
2	31	21	15	12	11	7.1	3.9	1.8	3.7	20	23	1.8
3	31	19	14	14	11	7.0	.71	1.3	2.2	22	22	2.8
4	30	19	14	15	10	6.6	2.3	2.3	.90	24	20	.38
5	30	20	14	16	10	6.7	1.8	2.1	.38	24	22	6.1
6	30	19	14	16	10	6.2	.08	1.4	.80	24	22	12
7	29	19	14	15	10	5.9	1.6	1.3	.64	22	22	8.8
8	30	18	14	16	9.9	5.7	2.1	1.9	2.1	20	20	9.1
9	30	14	14	16	10	5.4	1.7	1.8	2.3	18	20	10
10	29	9.2	14	16	10	5.2	.60	3.3	7.1	17	5.9	9.1
11	28	14	15	16	9.8	5.0	2.2	2.0	4.4	14	9.3	8.6
12	27	11	15	15	9.3	4.7	2.2	2.1	4.0	12	17	8.8
13	27	9.3	16	15	9.1	4.7	1.0	3.8	7.4	12	22	7.4
14	27	11	17	15	8.7	4.4	.66	3.4	4.4	14	24	5.2
15	27	11	15	15	8.9	4.3	.21	2.3	6.1	15	26	2.4
16	27	14	17	15	8.6	4.2	.62	2.4	5.6	13	29	5.2
17	27	14	16	14	8.5	4.0	1.1	2.6	7.8	13	31	6.1
18	27	14	16	14	8.4	3.9	1.5	2.6	9.5	14	30	8.9
19	26	14	15	14	8.3	3.8	.56	2.5	7.4	16	31	10
20	26	11	17	13	8.0	3.5	.00	2.2	7.4	18	32	10
21	26	17	16	13	7.8	3.5	.00	1.5	6.7	19	33	4.3
22	23	18	16	13	7.6	3.3	.12	1.5	4.8	20	34	3.4
23	23	16	16	13	7.4	3.6	.65	.10	7.6	20	34	6.9
24	24	16	17	13	7.3	3.5	1.4	.00	4.4	21	35	5.4
25	25	16	16	12	7.7	2.4	1.4	.00	5.2	22	34	2.3
26	28	16	16	12	7.7	.41	1.4	.00	8.2	22	36	3.8
27	25	16	16	12	7.5	1.5	1.9	.00	9.1	22	36	7.6
28	25	15	16	12	7.3	1.2	2.4	.00	8.9	23	35	7.8
29	25	15	16	12	---	.47	2.7	.00	8.2	24	34	11
30	25	14	16	11	---	.36	2.4	.00	9.8	22	35	13
31	23	---	15	11	---	.84	---	2.6	---	22	32	---
TOTAL	842	462.5	476	427	250.8	126.78	42.11	51.20	159.92	581	828.2	198.43
MEAN	27.2	15.4	15.4	13.8	8.96	4.09	1.40	1.65	5.33	18.7	26.7	6.61
MAX	31	22	17	16	11	7.2	3.9	3.8	9.8	24	36	13
MIN	23	9.2	14	11	7.3	.36	.00	.00	.00	12	5.9	.25
AC-FT	1670	917	944	847	497	251	84	102	317	1150	1640	394

CAL YR 1977 TOTAL 5061.52 MEAN 13.9 MAX 32 MIN .00 AC-FT 10040
WTR YR 1978 TOTAL 4445.94 MEAN 12.2 MAX 36 MIN .00 AC-FT 8820

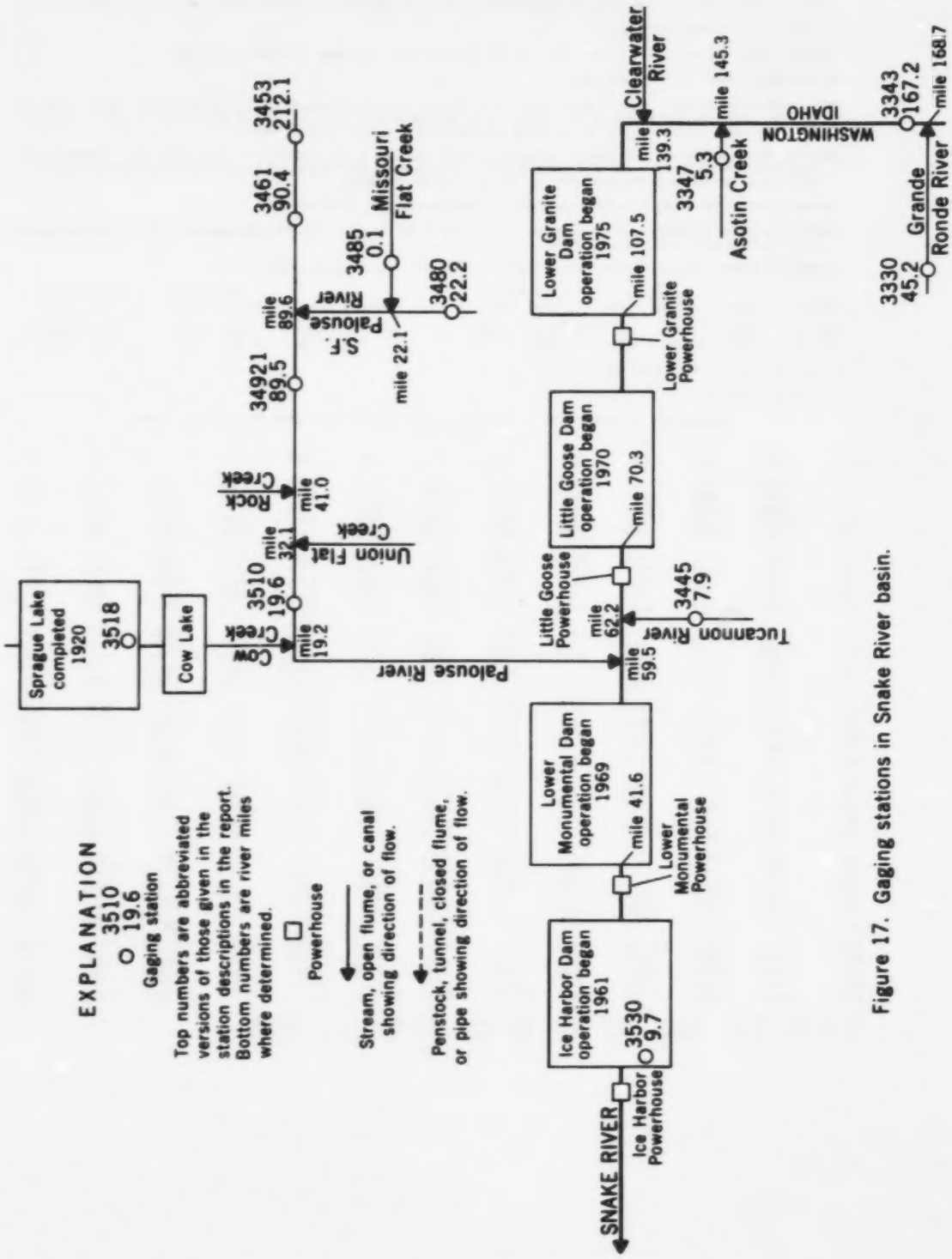

Figure 17. Gaging stations in Snake River basin.

13333000 GRANDE RONDE RIVER AT TROY, OR

LOCATION.--Lat 45°56'47", long 117°26'54", in NE¼SW¼ sec.4, T.5 N., R.43 E., Wallowa County, Hydrologic Unit 17060106, on left bank 500 ft (152 m) downstream from bridge at Troy, 600 ft (183 m) downstream from Wenaha River, and at mile 45.2 (72.7 km).

DRAINAGE AREA.--3,275 mi² (8,482 km²).

PERIOD OF RECORD.--August 1944 to current year. Monthly discharge only August 1944, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1946(M), 1948-50.

GAGE.--Water-stage recorder. Datum of gage is 1,585.98 ft (483.407 m) National Geodetic Vertical Datum of 1929. Aug. 17, 1944, to Sept. 30, 1949, nonrecording gage at site 500 ft (152 m) upstream at datum 10.85 ft (3.307 m) lower. Oct. 1, 1949, to Sept. 5, 1963, water-stage recorder at site 500 ft (152 m) upstream at datum 1.15 ft (0.351 m) higher.

REMARKS.--Records excellent. Flow slightly regulated by Wallowa Lake (see station 13326000) and small reservoirs. Diversions for irrigation above station, chiefly in vicinity of La Grande, Enterprise, and Wallowa; one transbasin diversion from Big Sheep Creek and tributaries in Imnaha River basin for irrigation in Wallowa Valley.

AVERAGE DISCHARGE.--34 years, 3,131 ft³/s (88.67 m³/s), 2,268,000 acre-ft/yr (2.80 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,200 ft³/s (1,200 m³/s) Dec. 23, 1964, gage height, 11.25 ft (3.429 m); minimum, 344 ft³/s (9.74 m³/s) Aug. 19-21, 23, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 9,000 ft³/s (255 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 2	2200	19,400	549	8.36	2.548	Apr. 1	1630	9,860	279	6.35	1.935
Dec. 14	2130	*22,900	649	*9.00a	2.743	Apr. 27	2200	12,400	351	6.95	2.118

Minimum, 712 ft³/s (20.2 m³/s) Aug. 10, 11.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1280	997	3280	2040	2280	4110	9120	8450	4390	4830	1190	954
2	1160	1060	11000	1670	2300	3680	9080	7800	4610	4770	1100	879
3	1080	1080	15100	2040	2660	3400	8280	7330	5110	4770	1020	854
4	1010	997	10100	2260	2940	3240	7560	6860	5760	4640	954	818
5	951	1010	7450	2380	2810	3270	7290	6410	6220	4470	928	806
6	905	1030	5970	2570	3500	3420	7090	5910	6600	4250	903	891
7	920	997	5360	2570	4190	3340	7290	5490	6680	4250	866	1260
8	966	966	4600	2440	4830	3730	7050	5170	6410	4690	842	1650
9	951	920	3990	2700	4720	5200	6570	5090	6380	4800	782	1480
10	935	920	3630	2790	4360	5910	6160	5520	6070	5380	735	1460
11	905	905	3520	2990	3970	5700	6070	5850	5460	5030	735	1630
12	863	891	3710	2970	3600	5350	5820	5640	5110	4420	770	1490
13	835	891	7600	2990	3220	4890	5520	5580	4910	3970	891	1410
14	821	966	16000	3060	3060	4470	5320	6070	4910	3790	1120	1340
15	807	1250	15900	3200	2920	4060	5110	6730	4610	3790	1040	1280
16	793	1410	12300	3730	2720	3760	5090	6730	4220	3810	1260	1220
17	780	1310	9570	4190	2550	3710	5110	6250	3870	3450	1310	1220
18	767	1210	7520	4610	2420	4110	4860	5910	4030	3080	1190	1220
19	767	1080	6040	4360	2340	4660	4690	5640	4140	2810	1160	1200
20	753	982	4890	4030	2440	5200	4690	5610	4470	2530	1140	1190
21	753	750	4330	3810	2530	5520	4640	5850	4690	2340	1140	1180
22	740	900	3950	3790	2700	5850	4500	6470	4800	2120	1150	1150
23	740	1030	3680	3470	2810	6250	4390	6280	5200	2000	1200	1120
24	727	1180	3520	3060	3100	6320	4220	5880	5110	1960	1180	1100
25	753	1570	3420	2880	3890	6040	4190	5460	4910	1870	1140	1070
26	951	5200	3420	2770	4610	6100	4440	5090	4330	1800	1120	1040
27	951	4300	3240	2640	4300	6570	7960	4720	4060	1600	1100	1020
28	905	3710	3040	2490	4500	6990	11400	4580	4280	1500	1060	1000
29	920	3570	2880	2440	---	7330	10100	4750	4770	1400	1030	992
30	966	3630	2880	2340	---	7960	9200	4640	4940	1350	992	979
31	997	---	2660	2260	---	7960	---	4390	---	1300	966	---
TOTAL	27652	46712	195150	91540	92770	158100	192810	182150	150970	102770	32014	34903
MEAN	892	1557	6295	2953	3313	5100	6427	5876	5032	3315	1033	1163
MAX	1280	5200	16000	4610	4830	7960	11400	8450	6600	5380	1310	1650
MIN	727	750	2660	1670	2280	3240	4190	4390	3870	1300	735	806
AC-FT	54850	92650	387100	181600	184000	313600	382400	361300	299400	203800	63500	69230

CAL YR 1977 TOTAL 611144 MEAN 1674 MAX 16000 MIN 344 AC-FT 1212000
WTR YR 1978 TOTAL 1307541 MEAN 3582 MAX 16000 MIN 727 AC-FT 2594000

13334300 SNAKE RIVER NEAR ANATONE, WA

LOCATION.--Lat 46°05'50", long 116°58'36", in SE¼SE¼NE¼ sec.12, T.7 N., R.46 E., Asotin County, Hydrologic Unit 17060103, on left bank 1.2 mi (1.9 km) downstream from Grande Ronde River, 7.8 mi (12.6 km) east of Anatone, 22 mi (35.4 km) south of Clarkston and at mile 167.2 (269.0 km).

DRAINAGE AREA.--92,960 mi^2 (241,000 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1958 to current year.

REVISED RECORDS.--WDR WA-76-2: 1974 and 1975.

GAGE.--Water-stage recorder. Datum of gage is 806.78 ft (245.907 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diversions above station for irrigation of about 4,090,000 acres (1,660 hm^2) of which about 750,000 acres (304 hm^2) are by withdrawal from ground water. Flow regulated by many reservoirs above station with a total usable capacity of more than 10,000,000 acre-feet (12,300 hm^3), the most effective of which is Brownlee Reservoir 106.3 mi (171.0 km) upstream (see sta 13289700). Diurnal fluctuations caused by Hells Canyon powerplant.

AVERAGE DISCHARGE.--20 years, 36,310 ft^3/s (1,028 m^3/s), 26,310,000 acre-ft/yr (32,400 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 195,000 ft^3/s (5,520 m^3/s), revised, June 18, 1974, gage height, 24.45 ft (7.452 m); minimum, 6,010 ft^3/s (170 m^3/s) Sept. 2, 1958, gage height, 1.29 ft (0.393 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 99,300 ft^3/s (2,810 m^3/s) June 9, gage height, 15.14 ft (4.615 m); minimum, 14,100 ft^3/s (399 m^3/s) Oct. 22, gage height, 3.73 ft (1.137 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17500	18100	20100	29500	23800	32800	66400	76600	54800	61600	25100	19300
2	17000	17400	26100	26900	23700	30600	72900	76700	53900	57900	19800	18000
3	16800	19400	38200	26500	22700	29500	68300	80500	54100	56300	20600	15400
4	17600	16400	29800	26500	23500	28500	64400	80500	57600	58400	21300	16100
5	16100	15000	27400	27600	21500	26800	58600	79300	67500	60000	19800	18600
6	17000	15100	27700	27300	23000	26800	53400	76900	75400	56300	22600	18300
7	18000	14900	26700	26000	26700	30300	51300	74100	83000	55200	18900	20700
8	18100	17100	27300	24700	35800	31500	49900	71000	90100	53700	21600	23300
9	18000	19300	29100	25400	35000	33500	48800	66000	93000	54400	19200	24400
10	17800	18000	27100	28000	35100	37100	48000	67400	91500	57400	17000	22700
11	18800	17200	24500	28300	35600	38100	48200	71400	85100	52700	16600	25300
12	16800	16100	24900	26800	35200	37700	48700	69000	79100	52400	16500	26000
13	16900	14900	28800	30400	31000	37000	48100	67100	77600	47600	16800	25200
14	15700	15800	42600	30300	33300	35600	46000	65800	76200	44400	17300	28000
15	15500	16200	45500	29700	31600	38200	46300	69900	75700	38200	18000	26300
16	15300	16100	50200	30500	32700	36900	46300	76200	74700	34800	18200	25600
17	15300	18500	48700	31300	31000	31900	47200	75200	70900	34200	18500	26300
18	15800	20200	38500	32700	28800	31900	50300	70700	66400	33100	18700	26900
19	16400	19600	34300	34700	27300	31300	49400	66000	66300	32000	18300	25700
20	16300	18700	29400	33900	24600	34700	49200	60500	67500	31100	17800	23200
21	15300	17700	30000	33200	26400	40500	49800	60500	68000	27800	18100	26200
22	15300	18600	25200	29100	25800	44200	49800	64800	66000	26200	20200	24800
23	16400	15700	22900	28300	23500	48100	49300	64800	65300	25200	21100	22900
24	15700	15500	22600	32000	24700	50100	48600	65100	65200	25100	21300	23100
25	16700	16200	25400	29400	25700	50600	47400	64100	63200	25900	20100	23800
26	17500	19900	30700	28400	24800	50200	48800	60200	63300	24100	19400	25900
27	19500	21100	31900	27900	29500	50700	63700	56700	62300	23700	18000	23900
28	21100	20900	29600	22700	31500	52300	84100	53900	61500	24200	18800	22000
29	18500	19300	32300	20400	---	54600	80400	54300	62000	25700	20600	21800
30	19300	19700	30100	22200	---	57700	77800	56300	62800	23100	18700	20200
31	20700	---	30300	22700	---	60200	---	56200	---	21500	19000	---
TOTAL	532700	528600	957900	873300	793800	1219300	1661400	2097700	2100000	1244200	597900	689900
MEAN	17180	17620	30900	28170	28350	39330	55380	67670	70000	40140	19290	23000
MAX	21100	21100	50200	34700	35800	60200	84100	80500	93000	61600	25100	28000
MIN	15300	14900	20100	20400	21500	26800	46000	53900	53900	21500	16500	15400
AC-FT	1057000	1048000	1900000	1732000	1575000	2418000	3295000	4161000	4165000	2468000	1186000	1368000

CAL YR 1977 TOTAL 6760020 MEAN 18520 MAX 50200 MIN 8520 AC-FT 13410000
WTR YR 1978 TOTAL 13296700 MEAN 36430 MAX 93000 MIN 14900 AC-FT 26370000

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1959 to current year.

INSTRUMENTATION.--Temperature recorder since October 1959.

COOPERATION.--Temperature records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum (1959-68, 1970-78), 25°C Aug. 11, 1960, Aug. 13, 1963, July 18, 1973; minimum, 0.0°C Jan. 25, 26, 1962, Dec. 22, 1964, Jan. 15, 1975.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 23.0°C Aug. 3, 5-10; minimum, 2.0°C Jan. 2.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	PH (UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT , 1977										
20...	1030	14800	8.0	12.5	14.5	2	9.7	97	13	K13
NOV										
17...	0930	18000	7.6	5.0	8.5	2	11.2	98	14	K5
DEC										
15...	1030	41800	8.0	9.0	8.0	60	11.1	96	18	130
JAN , 1978										
25...	0920	28400	7.9	2.5	3.5	4	12.2	94	15	K5
FEB										
15...	0930	31800	7.5	5.0	5.0	4	12.2	97	12	K4
MAR										
22...	0900	44200	7.2	14.5	11.0	7	11.2	104	13	21
APR										
20...	0945	49200	7.2	12.0	12.0	4	6.2	59	10	K7
MAY										
24...	1100	63400	7.2	19.0	13.0	5	11.2	109	59	K16
JUN										
20...	1000	66900	7.0	22.0	16.5	4	9.8	103	14	27
JUL										
20...	0930	31200	7.6	26.0	19.0	1	8.6	94	2	K12
AUG										
23...	1430	17500	8.1	27.0	22.5	2	9.6	112	8	K3
SEP										
21...	0830	28000	8.2	13.0	16.0	1	9.6	100	26	K9

DATE	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT , 1977									
20...	180	0	148	22	264	.36	10600	0	.54
NOV									
17...	160	0	131	23	240	.33	11700	1	.61
DEC									
15...	98	0	80	26	157	.21	17700	193	.61
JAN , 1978									
25...	150	0	123	27	236	.32	18100	6	.91
FEB									
15...	150	0	123	29	229	.31	19700	9	.27
MAR									
22...	10	0	8	27	136	.19	16200	15	.54
APR									
20...	78	0	64	24	117	.16	15500	12	.32
MAY									
24...	68	0	56	15	87	.12	14900	29	.10
JUN									
20...	71	0	58	13	79	.11	14300	23	.09
JUL									
20...	76	0	62	12	97	.13	8170	5	.08
AUG									
23...	110	0	90	15	141	.19	6660	18	.18
SEP									
21...	150	0	123	18	219	.30	16600	8	.40

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

WATER QUALITY DATA

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
OCT , 1977									
20...	.00	.44	.44	.98	4.3	.07	7	<10	10
NOV									
17...	.00	.22	.22	.83	3.7	.05	5	22	4
DEC									
15...	.04	.59	.63	1.2	5.5	.31	2	1	100
JAN , 1978									
25...	.07	.00	.07	.98	4.3	.08	3	1	20
FEB									
15...	.02	.01	.03	.30	1.3	.08	5	8	0
MAR									
22...	.01	.34	.35	.89	3.9	.09	9	0	10
APR									
20...	.04	.26	.30	.62	2.7	.06	2	10	0
MAY									
24...	.01	.81	.82	.92	4.1	.03	3	1	20
JUN									
20...	.01	.21	.22	.31	1.4	.03	2	25	0
JUL									
20...	.00	.33	.33	.41	1.8	.02	2	20	10
AUG									
23...	.00	.26	.26	.44	1.9	.04	3	3	10
SEP									
21...	.00	.28	.28	.68	3.0	.05	6	5	0

DATE	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	OIL AND GREASE (MG/L)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)
OCT , 1977									
20...	<10	20	<100	.0	1	8	0	4	160
NOV									
17...	5	70	40	.0	1	20	--	5	243
DEC									
15...	32	6700	14	.2	0	40	0	166	18700
JAN , 1978									
25...	9	350	31	.1	0	30	0	3	230
FEB									
15...	8	210	200	.1	1	30	0	6	515
MAR									
22...	5	750	1	.0	3	0	0	--	--
APR									
20...	4	440	100	.0	0	10	0	--	--
MAY									
24...	18	810	7	.1	0	20	0	--	--
JUN									
20...	14	2100	10	.3	0	20	0	29	5240
JUL									
20...	8	200	57	.0	0	10	0	7	590
AUG									
23...	18	280	50	.0	0	20	0	5	236
SEP									
21...	15	160	43	.0	0	20	0	6	454

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
OCT , 1977									
20...	1030	14800	264	.36	10600	4	160	--	--
JAN , 1978									
25...	0920	28400	236	.32	18100	3	230	--	--
FEB									
15...	0930	31800	229	.31	19700	6	515	--	--
APR									
04...	1325	62900	--	--	--	22	3740	--	--
05...	1115	57900	129	.18	20200	20	3130	--	--
29...	1530	48300	129	.18	28000	111	24100	16	25
MAY									
02...	1600	76700	114	.16	23600	42	8700	33	43
03...	1000	80700	114	.16	24800	50	10900	31	37
16...	1245	75600	93	.13	19200	66	13700	21	27
17...	1345	75000	97	.13	19600	125	25300	19	24
JUN									
07...	1030	80800	67	.09	14600	89	19400	10	15
13...	1200	71900	82	.11	15900	82	15900	13	22
14...	1130	71400	75	.10	14500	58	11200	12	18
20...	1000	66900	79	.11	14300	29	5240	--	--
JUL									
20...	0930	31200	97	.13	8170	7	590	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM	SED. SUSP. SIEVE DIAM. % FINER THAN 2.00 MM
OCT , 1977									
20...	--	--	--	78	93	98	100	--	--
JAN , 1978									
25...	--	--	--	94	100	--	--	--	--
FEB									
15...	--	--	--	96	100	--	--	--	--
APR									
04...	--	--	--	89	94	98	100	--	--
05...	--	--	--	92	96	99	100	--	--
29...	38	56	76	92	96	99	100	--	--
MAY									
02...	51	63	76	84	92	98	100	--	--
03...	45	56	68	77	85	94	98	99	100
16...	33	42	54	66	84	96	100	--	--
17...	31	40	50	60	78	96	99	100	--
JUN									
07...	22	32	45	56	69	89	98	100	--
13...	33	48	63	75	86	95	100	--	--
14...	28	40	54	66	78	92	98	100	--
20...	--	--	--	71	82	95	99	100	--
JUL									
20...	--	--	--	89	98	100	--	--	--

DATE	TIME	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV , 1977											
17...	0930	140	9	31	15	33	33	1.2	4.1	49	18
MAY , 1978											
24...	1100	47	0	14	3.0	7.6	25	.5	1.4	11	3.8
SEP											
21...	0830	120	0	28	11	26	32	1.1	3.5	41	11

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	15.0	14.0	12.5	11.5	5.5	5.0	4.0	3.0	4.0	3.5	6.0	5.0
2	15.0	14.0	12.0	11.0	6.5	5.5	3.5	2.0	4.0	3.5	5.5	4.5
3	15.0	14.5	11.5	11.0	4.5	6.0	3.5	2.5	5.0	4.0	5.0	4.5
4	15.0	14.5	10.5	10.5	6.5	6.0	3.5	3.0	5.0	4.5	5.0	4.5
5	14.0	14.0	10.5	10.0	6.0	5.0	4.0	3.5	5.0	4.5	5.5	5.0
6	14.5	14.0	10.5	10.0	5.5	5.5	4.0	4.0	5.5	4.5	6.5	5.5
7	15.0	14.0	10.5	9.5	6.0	5.5	4.5	4.0	5.5	5.0	6.5	6.0
8	14.5	14.0	9.5	9.0	5.5	5.0	4.5	4.5	5.0	4.5	6.5	6.5
9	14.5	14.0	10.0	9.0	5.5	5.0	4.5	4.5	5.0	5.0	7.5	6.5
10	14.5	13.5	10.5	9.5	6.0	5.5	5.0	4.5	5.0	4.5	7.0	6.0
11	14.5	13.5	10.0	9.5	6.0	5.5	5.0	4.5	5.0	4.5	6.5	5.5
12	14.0	13.5	10.0	9.5	6.5	6.0	5.0	4.5	5.0	4.5	6.5	6.0
13	14.5	13.5	9.5	9.0	6.5	6.0	5.5	4.5	4.5	4.0	6.5	5.5
14	14.5	13.5	9.0	9.0	6.5	5.5	5.0	5.0	5.0	4.5	6.5	5.5
15	14.5	13.5	9.5	9.0	6.5	6.5	5.0	5.0	5.0	4.5	6.5	5.5
16	14.5	14.0	9.0	8.5	6.5	5.0	5.0	5.0	4.5	4.0	7.0	6.0
17	14.5	13.5	8.5	8.0	5.5	5.0	5.0	5.0	4.5	4.0	8.0	6.5
18	14.5	14.0	8.5	7.5	5.0	5.0	5.5	5.0	4.5	4.0	8.5	7.5
19	14.0	14.0	8.0	7.0	5.0	4.5	5.5	5.0	5.0	4.5	8.5	7.5
20	14.5	13.5	7.5	6.5	4.5	3.5	5.5	5.5	6.0	5.0	8.5	7.5
21	13.5	13.5	6.5	6.0	3.5	3.0	5.5	5.5	6.0	5.5	8.5	7.5
22	13.5	13.0	7.0	6.5	3.5	3.0	5.5	5.0	6.0	5.5	9.0	8.0
23	13.5	13.0	6.5	5.0	3.5	3.0	5.0	4.0	6.0	5.5	8.5	8.0
24	13.5	13.5	6.0	5.5	4.0	3.5	4.5	3.5	6.0	5.5	9.0	7.5
25	14.0	13.0	5.5	5.5	4.0	3.5	4.0	3.5	6.5	5.5	9.0	8.0
26	13.5	13.0	6.0	5.5	4.5	4.0	4.0	3.5	6.5	6.0	9.5	8.5
27	13.5	12.5	6.0	5.5	4.5	4.0	4.0	3.5	6.5	6.0	10.5	9.5
28	12.5	12.5	6.5	6.0	5.0	4.0	4.0	3.5	6.0	5.5	11.0	9.5
29	13.0	12.5	6.5	6.5	5.0	4.5	4.0	4.0	---	---	10.5	9.5
30	12.5	12.5	6.5	6.5	5.0	4.5	4.5	4.0	---	---	10.5	10.0
31	12.5	12.0	---	---	4.5	4.0	4.0	3.5	---	---	10.5	9.5
MONTH	15.0	12.0	12.5	5.0	6.5	3.0	5.5	2.0	6.5	3.5	11.0	4.5

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	10.0	9.5	11.5	11.0	14.0	12.5	16.5	16.0	22.5	21.0	21.0	20.0
2	9.0	9.0	11.5	11.0	14.0	13.0	16.0	15.5	22.5	21.5	21.5	20.5
3	9.0	8.5	11.5	11.0	15.0	13.5	16.0	15.0	23.0	21.5	22.0	20.5
4	9.0	8.5	11.0	10.0	15.5	14.0	15.0	14.5	22.5	21.5	21.5	20.5
5	8.5	8.0	10.5	10.0	15.0	14.0	15.0	14.0	23.0	22.0	21.0	20.5
6	8.5	8.0	11.0	10.0	14.5	13.5	16.5	14.5	23.0	22.0	20.5	20.0
7	8.5	8.0	11.5	10.5	14.5	13.0	17.0	16.5	23.0	22.0	20.0	19.0
8	9.5	8.0	12.5	11.0	14.0	13.0	17.0	16.0	23.0	21.5	19.0	18.5
9	10.0	8.5	12.0	12.0	13.5	13.0	17.5	16.5	23.0	22.0	19.0	18.5
10	10.5	9.5	12.5	11.5	13.0	12.0	18.0	17.0	23.0	22.0	19.0	18.5
11	11.0	10.0	12.5	11.5	12.5	11.5	17.5	16.5	22.5	22.0	18.5	18.0
12	10.5	9.5	12.0	11.5	12.5	12.0	18.0	16.5	22.0	21.0	18.0	17.0
13	10.5	9.5	12.5	11.5	13.0	12.0	18.5	17.5	21.0	19.5	17.5	17.0
14	10.5	9.5	12.0	12.0	13.5	12.5	19.5	18.5	20.5	19.5	18.5	17.5
15	11.0	10.0	12.5	12.0	13.5	13.0	20.0	19.0	20.0	20.0	18.0	17.5
16	10.5	10.0	11.5	11.0	14.0	13.0	19.5	18.5	20.0	19.0	17.5	17.0
17	10.0	9.5	11.0	10.5	14.5	13.5	19.5	18.0	19.0	18.0	17.0	16.0
18	10.5	9.0	11.5	10.5	14.5	14.0	20.5	19.0	19.0	17.5	16.5	16.0
19	11.0	10.0	13.0	11.5	15.0	14.0	20.0	19.0	19.0	18.5	17.0	16.0
20	10.5	10.0	13.0	12.0	15.5	14.5	20.0	18.5	19.0	18.5	16.5	16.0
21	10.5	9.5	13.5	12.5	15.5	14.5	20.5	19.0	19.5	18.5	16.5	15.5
22	10.5	9.5	13.0	12.0	15.0	14.5	21.0	19.0	19.0	18.5	16.0	15.5
23	11.0	9.5	12.0	10.5	15.5	15.0	21.5	20.0	19.5	18.5	16.5	15.5
24	11.5	10.5	10.5	10.0	15.5	14.5	21.5	20.5	20.5	19.0	17.0	16.0
25	12.0	11.0	10.5	10.0	14.5	14.0	22.0	20.0	19.5	19.0	17.5	16.5
26	12.5	11.5	11.0	10.0	15.0	13.5	22.0	20.5	19.5	19.0	18.0	17.5
27	12.5	10.0	12.0	11.0	15.5	14.5	22.5	21.0	20.0	18.5	18.0	17.5
28	10.5	10.0	13.0	12.0	16.5	15.5	22.0	21.0	20.0	19.0	17.5	17.0
29	11.0	10.0	13.0	12.5	16.5	16.0	22.0	20.5	21.0	19.5	17.5	17.0
30	11.5	10.5	13.0	12.0	17.0	16.0	22.5	21.0	20.0	19.5	17.0	16.5
31	---	---	13.0	12.0	---	---	22.5	21.5	20.5	19.5	---	---
MONTH	12.5	8.0	13.5	10.0	17.0	11.5	22.5	14.0	23.0	17.5	22.0	15.5
YEAR	23.0	2.0										

13334700 ASOTIN CREEK BELOW KEARNEY GULCH, NEAR ASOTIN, WA

LOCATION--Lat 46°19'35", long 117°09'06", in SW¼SE¼ sec.22, T.10 N., R.45 E., Asotin County, Hydrologic Unit 17060103, on left bank 0.3 mi (0.5 km) downstream from Kearney Gulch, 2.5 mi (4.0 km) upstream from George Creek, 5.0 mi (8.0 km) west of Asotin, and at mile 5.3 (8.5 km).

DRAINAGE AREA.--170 mi^2 (440 km^2).

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,090 ft (332 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record, which are fair. Several diversions for irrigation. Prior to Nov. 20, 1959, at a point 3.3 mi (5.3 km) upstream, the city of Clarkston diverted about 30 ft^3/s (0.85 m^3/s) for municipal use and irrigation. Natural low flows nearly equivalent to those of former station 3.3 mi (5.3 km) upstream.

AVERAGE DISCHARGE.--19 years, 77.2 ft^3/s (2.186 m^3/s), 55,930 acre-ft/yr (69.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge about 3,700 ft^3/s (105 m^3/s) Jan. 15, 1974; maximum gage height, 8.07 ft (2.460 m) Jan. 14, 1974; minimum discharge, 13 ft^3/s (0.37 m^3/s) Jan. 11, 1963, result of freezeup; minimum gage height, 0.69 ft^3/s (0.210 m^3/s) Aug. 14, 15, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 220 ft^3/s (6.23 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 14	0500	*496	14.0	*2.89	0.881	Apr. 27	0645	322	9.12	2.30	0.701

Minimum discharge, 32 ft^3/s (0.91 m^3/s) Oct. 3-6, 21-24, minimum gage height, 0.79 (0.241 m). Oct. 3-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	35	52	69	68	80	190	188	92	64	38	41
2	35	37	76	125	68	78	180	172	92	68	38	41
3	34	37	161	132	68	78	160	160	92	72	37	40
4	34	36	134	78	66	74	153	150	92	82	38	40
5	32	36	107	76	69	78	139	139	92	85	37	40
6	32	36	96	69	74	76	132	125	94	82	35	42
7	33	35	91	66	80	74	158	117	94	76	35	64
8	34	35	85	68	89	78	130	114	94	74	36	58
9	33	35	80	68	92	92	123	119	92	82	36	50
10	34	34	75	68	91	96	119	125	92	90	36	48
11	34	34	75	68	89	98	114	132	94	88	37	45
12	34	33	79	68	85	94	110	123	92	82	40	44
13	33	34	126	66	83	91	108	130	88	74	51	44
14	33	34	431	69	80	89	121	148	84	66	44	44
15	33	36	406	73	78	85	110	160	80	62	45	42
16	33	37	282	74	76	82	115	150	78	65	47	42
17	33	36	206	78	73	80	120	139	74	65	42	42
18	33	35	160	80	73	78	110	128	70	60	41	44
19	33	34	137	80	71	76	105	128	68	58	41	42
20	33	35	117	80	71	74	100	134	72	56	42	40
21	32	42	108	80	69	72	95	143	70	54	44	40
22	32	35	102	78	69	70	95	148	64	52	54	40
23	32	35	96	74	71	90	100	132	68	50	53	40
24	32	36	91	74	74	100	100	121	76	44	45	40
25	33	42	85	73	78	115	105	112	76	42	44	40
26	35	55	81	73	83	120	112	104	70	42	42	38
27	35	54	76	71	81	120	230	102	64	42	42	38
28	36	51	74	69	80	115	253	100	60	40	41	38
29	36	50	74	69	---	115	236	100	60	40	41	38
30	37	51	73	68	---	146	209	94	64	38	42	38
31	36	---	68	68	---	148	---	94	---	38	44	---
TOTAL	1048	1155	3904	2352	2149	2866	4132	4031	2398	1933	1288	1283
MEAN	33.8	38.5	126	75.9	76.8	92.5	138	130	79.9	62.4	41.5	42.8
MAX	39	55	431	132	92	148	253	188	94	90	54	64
MIN	32	33	52	66	66	70	95	94	60	38	35	38
AC-FT	2080	2290	7740	4670	4260	5680	8200	8000	4760	3830	2550	2540

CAL YR 1977 TOTAL 17265 MEAN 47.3 MAX 431 MIN 27 AC-FT 34250
WTR YR 1978 TOTAL 28539 MEAN 78.2 MAX 431 MIN 32 AC-FT 56610

NOTE.--No gage-height record June 4 to July 24.

13343600 SNAKE RIVER BELOW LOWER GRANITE DAM, WA
(National Water Quality Surveillance System)

LOCATION.--Lat 46°40'04", long 117°26'38", in NE¼SE¼ sec.30, T.14 N., R.43 E., Garfield County, Hydrologic Unit 17060107, 1.0 mi (1.6 km) below Lower Granite Dam, 16 mi (25.7 km) northeast of Pomeroy, and at mile 106.5 (171.4 km).

DRAINAGE AREA.--103,500 mi² (268,100 km²), approximately.

PERIOD OF RECORD.--Water years 1975 to September 1978 (discontinued).

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW (CFS)	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	CLOUD COVER (PER-CENT)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	HARD-NESS (MG/L AS CACO3)
NOV , 1977												
11...	1610	--	38200	350	7.9	10.6	100	1	10.0	22	2	120
DEC												
15...	1400	78700	--	270	8.1	5.5	100	--	13.5	16	44	92
JAN , 1978												
25...	1350	--	43500	235	7.7	4.0	100	9	10.4	52	--	87
FEB												
22...	1150	--	41600	262	7.7	4.4	100	4	12.0	13	7	94
MAR												
23...	1220	--	72400	210	7.4	7.6	100	6	11.0	10	--	70
APR												
18...	1430	--	87400	151	8.0	10.2	75	4	12.9	7	43	60
MAY												
11...	1230	--	186000	150	8.0	11.5	95	6	10.8	--	14	54
JUN												
08...	1050	--	140000	69	7.8	13.1	0	6	11.7	9	53	27
JUL												
13...	1245	--	70000	122	7.6	17.4	0	8	9.6	10	5	38
AUG												
02...	1240	--	66400	140	7.6	21.3	0	--	7.5	9	<1	51
31...	1120	--	42400	194	7.7	19.4	100	2	7.6	8	<1	66
SEP												
28...	1100	--	54200	247	8.2	15.8	5	1	8.9	12	2	85

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM TOTAL RECOV-ERABLE (MG/L AS CA)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, TOTAL RECOV-ERABLE (MG/L AS MG)	MAGNE-SIUM, SUS-PENDED TOTAL (MG/L AS MG)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, TOTAL RECOV-ERABLE (MG/L AS NA)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, TOTAL RECOV-ERABLE (MG/L AS K)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)
NOV , 1977												
11...	2	--	27	--	--	12	--	30	--	3.5	140	0
DEC												
15...	2	22	22	9.4	--	9.1	21	21	3.0	2.8	110	0
JAN , 1978												
25...	5	--	21	--	--	8.5	--	19	--	2.7	100	0
FEB												
22...	0	--	24	--	--	8.3	--	19	--	2.7	120	0
MAR												
23...	0	19	17	64	--	6.6	15	14	2.1	2.2	87	0
APR												
18...	12	--	15	--	--	5.4	--	11	--	1.8	58	0
MAY												
11...	1	--	17	--	--	5.2	--	11	--	2.1	77	0
JUN												
08...	0	7.4	7.5	2.2	.2	2.0	4.6	4.4	1.0	.8	33	0
JUL												
13...	1	--	9.4	--	--	3.4	--	7.6	--	1.5	45	0
AUG												
02...	0	--	14	--	--	3.9	--	9.7	--	1.6	67	0
31...	0	--	17	--	--	5.8	--	17	--	2.0	83	0
SEP												
28...	3	21	22	7.9	.5	7.4	19	19	2.6	2.6	100	0

13343600 SNAKE RIVER BELOW LOWER GRANITE DAM, WA--Continued

DATE	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)
NOV , 1977												
11...	118	2.8	41	15	21	224	219	23100	3	.50	.06	.17
DEC												
15...	98	1.4	29	16	22	177	176	37600	34	.65	.06	.39
JAN , 1978												
25...	82	3.2	27	10	23	165	161	19400	13	.94	.12	.19
FEB												
22...	98	3.8	24	12	24	161	173	18100	12	.85	.08	.16
MAR												
23...	71	5.5	17	7.9	19	121	127	23700	6	.59	.05	.28
APR												
18...	48	.9	25	5.9	18	116	111	27400	9	.30	.05	--
MAY												
11...	63	1.2	18	7.1	17	114	116	32600	13	.21	.10	.44
JUN												
08...	27	.8	6.8	2.3	11	38	51	14400	30	.04	.06	.21
JUL												
13...	37	1.8	11	3.6	14	75	73	14200	8	.09	.05	--
AUG												
02...	55	2.7	10	3.9	13	75	89	9400	5	--	--	--
31...	68	2.6	20	7.5	13	112	123	12800	2	.12	.06	.17
SEP												
28...	82	1.0	32	9.6	15	150	157	22000	0	.26	.04	.16

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)
NOV , 1977												
11...	.23	.73	.05	.03	.09	--	5	500	--	0	--	0
DEC												
15...	.45	1.1	.10	.04	.12	3	--	--	2	--	10	--
JAN , 1978												
25...	.31	1.2	.07	.04	.12	--	3	0	--	1	--	10
FEB												
22...	.24	1.1	.06	.05	.15	--	3	100	--	1	--	0
MAR												
23...	.33	.92	.06	.04	.12	2	--	--	1	--	10	--
APR												
18...	--	--	.05	.03	.09	--	4	300	--	0	--	0
MAY												
11...	.54	.75	.06	.05	.15	--	2	200	--	1	--	0
JUN												
08...	.27	.31	.04	.01	.03	2	--	--	3	--	0	--
JUL												
13...	--	--	.04	.01	.03	--	3	200	--	3	--	10
AUG												
02...	--	--	--	--	--	--	1	20	--	3	--	0
31...	.23	.35	.04	.02	.06	--	4	100	--	0	--	10
SEP												
28...	.20	.46	.04	.03	.09	3	--	--	0	--	0	--

DATE	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV , 1977												
11...	--	1	--	--	3	.2	--	0	0	--	6	2.4
DEC												
15...	14	--	1400	26	--	.1	0	--	--	20	--	3.6
JAN , 1978												
25...	--	3	--	--	2	.0	--	0	0	--	10	2.9
FEB												
22...	--	6	--	--	3	.0	--	1	1	--	10	2.7
MAR												
23...	9	--	350	0	--	.0	0	--	--	10	--	3.2
APR												
18...	--	3	--	--	1	.0	--	0	0	--	10	2.8
MAY												
11...	--	6	--	--	7	.1	--	0	0	--	0	2.4
JUN												
08...	8	--	420	17	--	.1	0	--	--	20	--	2.9
JUL												
13...	--	6	--	--	3	.2	--	0	0	--	10	2.1
AUG												
02...	--	5	--	--	4	.0	--	0	0	--	10	2.3
31...	--	5	--	--	4	.0	--	0	0	--	0	2.9
SEP												
28...	19	--	160	32	--	.2	0	--	--	20	--	2.4

13344500 TUCANNON RIVER NEAR STARBUCK, WA

LOCATION.--Lat 46°30'17", long 118°03'55", in NE¼SW¼ sec.21, T.12 N., R.38 E., Columbia County, Hydrologic Unit 17060107, on right bank 180 ft (55 m) downstream from county road bridge, 0.5 mi (0.8 km) downstream from Smith Hollow, 3.0 mi (4.8 km) east of Starbuck, 3.3 mi (5.3 km) downstream from Pataha Creek, and at mile 7.9 (12.7 km).

DRAINAGE AREA.--431 mi^2 (1,116 km^2).

PERIOD OF RECORD.--October 1914 to September 1917, August 1928 to September 1931, October 1958 to current year. Monthly discharge only for October and November 1914, published in WSP 1317. Water temperatures and sediment records October 1962 to June 1970.

REVISED RECORDS.--WSP 1347: 1930.

GAGE.--Water-stage recorder. Altitude of gage is 730 ft (223 m), from topographic map. Nov. 8, 1914, to Sept. 30, 1917, nonrecording gage at site 2.8 mi (4.5 km) upstream at different datum. Aug. 9, 1928, to Sept. 30, 1931, nonrecording gages at site 2.5 mi (4.0 km) upstream at various datums.

REMARKS.--Records fair. Many small diversions for irrigation above the station.

AVERAGE DISCHARGE.--26 years (water years, 1915-17, 1929-31, 1959-78), 177 ft^3/s (5.013 m^3/s), 128,200 acre-ft/yr (158 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,980 ft^3/s (226 m^3/s) Dec. 22, 1964, gage height, 9.84 ft (2.999 m), from rating curve extended above 2,500 ft^3/s (70.8 m^3/s) on basis of slope-area measurement of peak flow; minimum, 15 ft^3/s (0.42 m^3/s) July 11, 12, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft^3/s (19.8 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 15	0230	*705	20.0	*2.44	0.744

Minimum daily discharge, 50 ft^3/s (1.42 m^3/s) Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	100	153	95	153	200	355	254	153	87	56	91
2	87	102	183	89	153	191	367	244	148	104	58	85
3	83	102	359	138	166	188	328	231	150	144	56	83
4	83	102	299	161	177	188	295	228	156	133	54	78
5	83	100	254	206	177	185	281	218	158	133	53	78
6	83	100	228	231	200	177	261	206	158	115	56	80
7	85	97	225	191	225	169	254	191	158	106	61	100
8	83	95	206	197	250	169	247	182	156	133	59	174
9	83	93	197	221	264	206	228	185	158	115	54	104
10	83	91	197	209	257	212	221	191	148	108	53	95
11	83	91	191	206	244	218	215	206	136	97	53	93
12	83	91	191	203	231	225	215	200	133	93	61	89
13	82	91	248	191	209	215	212	200	126	89	72	89
14	82	93	570	188	197	212	209	218	124	87	74	87
15	80	95	660	197	194	289	206	250	112	85	72	85
16	78	100	556	212	177	191	221	244	118	108	85	83
17	78	102	433	215	163	185	212	225	104	93	78	91
18	80	102	383	221	161	182	194	215	100	85	74	93
19	80	97	328	212	158	194	185	212	97	82	70	89
20	80	93	271	203	153	203	185	215	91	80	80	87
21	80	72	247	194	150	206	182	225	87	78	89	87
22	82	87	237	182	150	215	180	231	87	74	93	87
23	82	91	221	177	150	231	180	225	95	72	100	89
24	82	102	203	166	158	244	166	209	108	69	91	91
25	82	124	188	166	172	234	163	194	108	67	85	91
26	87	177	177	169	185	228	185	182	100	64	85	89
27	89	182	161	163	191	237	237	177	87	62	85	85
28	89	163	153	156	194	250	306	174	82	62	80	85
29	89	153	150	156	---	267	288	169	87	62	80	87
30	95	153	163	153	---	292	271	161	87	61	83	87
31	104	---	150	150	---	303	---	156	---	62	95	---
TOTAL	2615	3241	8182	5618	5259	6617	7849	6418	3596	2802	2245	2682
MEAN	84.4	108	264	181	188	213	235	207	120	90.4	72.4	89.4
MAX	104	182	660	231	264	303	367	254	158	144	100	124
MIN	78	72	150	89	150	169	163	156	82	61	53	78
AC-FT	5190	6430	16230	11140	10430	13120	15980	12730	7130	5560	4450	5320

CAL YR 1977 TOTAL 36968 MEAN 101 MAX 660 MIN 38 AC-FT 73330
WTR YR 1978 TOTAL 56324 MEAN 154 MAX 660 MIN 53 AC-FT 111700

13344520 TUCANNON RIVER AT POWER, WA

LOCATION.--Lat 46°32'16", long 118°09'18", in SW¼SW¼ sec.11, T.12 N., R.37 E., Columbia County, Hydrologic Unit 17060107, at road bridge at Powers, 2 mi (3.2 km) northwest of Starbuck.

DRAINAGE AREA.--About 500 mi^2 (1,300 km^2).

PERIOD OF RECORD.--Water years 1974, 1977 to current year.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is good.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
OCT , 1977							
24...	1100	89	--	6.6	11.0	--	39
NOV							
28...	1115	166	105	7.6	8.2	--	19
DEC							
29...	1030	241	95	7.6	3.1	--	30
JAN , 1978							
24...	1010	158	125	6.9	3.4	25	40
FEB							
14...	1010	200	125	7.4	5.0	60	95
MAR							
28...	0950	250	75	6.9	13.0	20	24
APR							
25...	1115	166	135	7.0	16.4	20	10
MAY							
23...	1030	228	60	8.2	12.5	25	8
JUN							
20...	1045	91	105	6.6	19.2	15	6
JUL							
25...	1045	67	120	8.4	23.4	10	6
AUG							
22...	1035	69	135	8.1	17.5	10	20
SEP							
26...	1050	91	130	8.2	17.0	20	3

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977						
26...	--	.13	.04	.10	.02	.06
NOV						
28...	--	.34	.11	.12	.07	.21
DEC						
29...	--	.36	.11	.24	.06	.18
JAN , 1978						
24...	12.9	.46	.07	.31	.28	.86
FEB						
14...	11.8	.42	.06	.11	.06	.18
MAR						
28...	9.4	.18	.09	.16	.07	.21
APR						
25...	8.7	.05	.04	.08	.07	.21
MAY						
23...	10.0	.09	.06	.08	.05	.15
JUN						
20...	9.0	.06	.05	.10	.06	.18
JUL						
25...	7.7	.08	.10	.09	.08	.25
AUG						
22...	9.3	.09	.02	.09	.07	.21
SEP						
26...	8.8	.07	.02	.07	.07	.21

13345300 PALOUSE RIVER AT PALOUSE, WA

LOCATION.--Lat 46°54'36", long 117°04'12", in SW¼SW¼ sec.6, T.16 N., R.46 E., Whitman County, Hydrologic Unit 17060108, on right bank at State Highway 6, 0.3 mi (0.5 km) east of the intersection of State Highways 6, 27, and 272 in Palouse and at mile 212.1 (194.8 km).

DRAINAGE AREA.--360 mi² (932 km²), approximately.

PERIOD OF RECORD.--May 1973 to current year. Chemical analyses October 1974 to September 1975, sediment records September 1961 to August 1964 (published as 13345400).

GAGE.--Water-stage recorder. Datum of gage is 2,412.62 ft (735.367 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers reference mark).

REMARKS.--Records good except those for periods of no gage-height record which are fair. Small diversions for irrigation upstream from station. Low flows regulated by millpond at Potlatch, Idaho.

AVERAGE DISCHARGE.--5 years (water year 1974-78), 298 ft³/s (8.430 m³/s), 215,900 acre-ft/yr (266 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft³/s (320 m³/s) Jan. 16, 1974, gage height, 16.08 ft (4.901 m); no flow Aug. 26 to Sept. 9, 1973, and Aug. 21-27, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 2,900 ft³/s (82.1 m³/s) Dec. 14; minimum discharge, 6.0 ft³/s (0.17 m³/s) Aug. 11-13, gage height, 0.71 ft (0.216 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	54	93	35	180	550	620	418	116	29	10	13
2	16	41	345	40	210	470	950	350	106	29	10	21
3	12	44	660	60	430	350	750	307	99	35	9.6	22
4	11	42	365	80	690	330	600	275	92	33	8.5	18
5	11	35	246	100	710	400	580	248	85	55	8.0	16
6	8.5	30	186	180	1200	430	550	223	78	64	7.5	15
7	8.5	30	170	290	1800	370	500	199	74	44	7.5	17
8	8.5	30	142	520	2010	390	490	179	64	36	7.5	27
9	9.6	35	119	740	1500	850	400	162	64	53	7.5	52
10	14	33	113	930	1020	900	330	158	60	53	6.5	48
11	16	30	212	400	770	760	297	157	60	45	6.5	34
12	16	29	500	300	570	710	270	144	58	36	6.0	29
13	13	32	651	250	445	650	246	135	55	32	6.5	26
14	12	38	2900	350	360	660	230	137	55	27	11	24
15	11	61	1000	450	332	560	221	164	54	25	27	22
16	11	68	1200	580	295	500	232	256	51	23	26	20
17	11	53	700	620	270	440	268	421	47	23	31	18
18	11	41	490	670	250	420	216	330	44	24	32	18
19	11	41	355	640	255	440	193	268	42	24	22	17
20	11	25	241	620	255	500	180	230	39	22	20	18
21	11	23	190	430	250	520	193	205	37	19	19	18
22	12	18	219	500	245	540	179	216	34	17	21	18
23	11	17	185	520	250	500	175	201	34	16	36	18
24	12	19	160	490	260	700	171	179	34	15	41	18
25	15	38	140	330	290	710	160	180	36	14	34	18
26	17	153	130	310	470	620	155	171	38	13	24	18
27	20	160	100	280	580	560	191	157	40	12	19	15
28	29	93	90	260	590	530	670	151	35	11	16	15
29	26	93	70	250	---	510	703	139	31	11	15	15
30	31	106	75	230	---	490	514	130	30	11	13	15
31	51	---	60	200	---	480	---	124	---	10	13	---
TOTAL	476.1	1520	12940	11445	16503	16920	11252	6623	1692	861	521.6	643
MEAN	15.4	50.7	417	369	589	546	375	214	56.4	27.8	16.8	21.4
MAX	51	160	2900	740	2010	900	950	421	116	64	41	52
MIN	8.5	17	60	35	180	330	155	124	30	10	6.0	13
AC-FT	944	3010	25670	22700	32730	33560	22320	13140	3360	1710	1030	1280

CAL YR 1977 TOTAL 27978.19 MEAN 76.7 MAX 2900 MIN .00 AC-FT 55490
WTR YR 1978 TOTAL 81396.70 MEAN 223 MAX 2900 MIN 6.0 AC-FT 161500

NOTE.--No gage-height record Dec. 11-16, Jan. 8 to Feb. 9, Feb. 17 to Apr. 10.

13346100 PALOUSE RIVER AT COLFAX, WA

LOCATION.--Lat 46°53'50", long 117°21'20", in NW¼NE¼ sec.11, T.16 N., R.43 E., Whitman County, Hydrologic Unit 17060108, on left bank 1,000 ft (305 m) upstream from Sixth Street crossing in Colfax, and 0.8 mi (1.3 km) upstream from South Fork.

DRAINAGE AREA.--497 mi^2 (1,287 km^2).

PERIOD OF RECORD.--September 1955 to June 1973, Oct. 1, 1975 to current year (since Oct. 1, 1977, Dec. 1 to June 30 only). Published as Palouse River "near Colfax" 1955-63, where drainage area was 491 mi^2 (1,272 km^2). Records published for both sites October 1963 to September 1964.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,956.94 ft (596.475 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Sept. 19, 1955, to Sept. 30, 1963, at site 3.1 mi (5.0 km) upstream at different datum.

REMARKS.--Records good. Many small diversions for irrigation above station. Slight regulation by millponds above station.

AVERAGE DISCHARGE.--19 years (water years 1956-72, 1976-77) 306 ft^3/s (8.666 m^3/s) 221,700 acre-ft/yr (273 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,510 ft^3/s (241 m^3/s) Dec. 24, 1964, gage height, 11.14 ft (3.395 m); minimum (water years 1956-72, 1976-77), 0.10 ft^3/s (0.003 m^3/s) Aug. 25-28, 1966.

EXTREMES FOR THE PERIOD DECEMBER 1, 1977 TO JUNE 30, 1978.--Peak discharges above base 2,000 ft^3/s (56.6 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 14	1930	*3,100	87.8	7.16	2.182	Feb. 8	0030	2,510	71.1	6.63	2.021
Jan. 6	1630	(a)		*7.78	2.371						

(a) Ice jam.

Minimum discharge, 33 ft^3/s (0.93 m^3/s) June 23, 30, gage height, 3.13 ft (0.954 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			176	40	206	654	668	441	129			
2			140	45	237	562	1110	375	112			
3			771	70	490	417	868	328	112			
4			475	100	786	387	692	301	103			
5			316	120	811	469	672	281	97			
6			235	210	1340	507	636	253	89			
7			187	370	2000	432	580	212	83			
8			172	678	2230	459	581	202	75			
9			158	969	1680	988	493	197	70			
10			150	695	1280	1050	424	194	68			
11			222	523	990	884	366	189	66			
12			526	410	762	821	336	174	63			
13			700	338	595	754	309	171	63			
14			2370	358	496	762	293	173	63			
15			2050	480	453	643	279	257	61			
16			1460	626	414	574	277	391	61			
17			909	661	372	508	343	482	56			
18			648	711	323	481	299	387	54			
19			475	676	335	510	265	310	52			
20			345	658	335	571	234	261	50			
21			300	669	324	598	231	231	45			
22			250	617	320	614	225	215	43			
23			220	555	320	665	212	223	39			
24			190	427	331	777	210	194	41			
25			170	349	405	785	201	189	45			
26			150	326	558	683	191	189	45			
27			130	294	684	612	362	170	45			
28			110	273	689	580	913	166	45			
29			90	269	---	559	683	158	43			
30			95	253	---	533	536	143	39			
31			65	220	---	521	---	136	---			
TOTAL	---	---	14266	12990	19766	19360	13489	7593	1957	---	---	---
MEAN	---	---	460	419	706	625	450	245	65.2	---	---	---
MAX	---	---	2370	969	2230	1050	1110	482	129	---	---	---
MIN	---	---	65	40	206	387	191	136	39	---	---	---
AC-FT	---	---	28300	25770	39210	38400	26760	15060	3880	---	---	---

13348000 SOUTH FORK PALOUSE RIVER AT PULLMAN, WA

LOCATION.--Lat 46°43'57", long 117°10'48", in NE¼NE¼ sec.6, T.14 N., R.45 E., Whitman County, Hydrologic Unit 17060108, on right bank at State Street crossing in Pullman, 600 ft (183 m) upstream from Missouri Flat Creek, and at mile 22.2 (35.7 km).

DRAINAGE AREA.--132 mi^2 (342 km^2).

PERIOD OF RECORD.--February 1934 to September 1942, December 1959 to current year. Chemical analyses October 1973 to September 1974.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,326.3 ft (709.06 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 19, 1934, nonrecording gage at site 30 ft (9 m) upstream.

REMARKS.--Records excellent. Minor diversions for domestic use above station. Slight regulation caused by pondage at Robinson Park Dam on headwaters and by Moscow sewage disposal plant on Paradise Creek.

AVERAGE DISCHARGE.--26 years (water years 1935-42, 1961-78) 39.2 ft^3/s (1.110 m^3/s), 4.03 in/yr (102 mm/yr), 28,400 acre-ft/yr (35.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,570 ft^3/s (129 m^3/s) Jan. 21, 1972, gage height, 9.46 ft (2.883 m); minimum, 0.1 ft^3/s (0.003 m^3/s) Sept. 23, 1942, gage height, 0.50 ft (0.152 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since 1910, 9.5 ft (2.90 m) Feb. 26, 1948, discharge, 5,000 ft^3/s (142 m^3/s). Flood of Jan. 24, 1959, reached a stage of 6.5 ft (1.98 m) from floodmarks, discharge, 1,860 ft^3/s (52.7 m^3/s). Flood of Dec. 22, 1933, reached a stage of 6.0 ft (1.83 m) from gage readings furnished by Washington State University, discharge, 1,800 ft^3/s (51.0 m^3/s).

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,000 ft^3/s (28.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 13	2115	*948	26.8	*4.21	1.283

Minimum discharge, 2.2 ft^3/s (0.062 m^3/s) Aug. 7, 9, 10, 12; minimum gage height, 0.63 ft (0.192 m) Aug. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	7.3	29	13	40	98	158	33	12	5.6	3.4	4.8
2	5.2	9.2	93	10	70	73	93	31	12	6.1	3.6	4.5
3	4.8	6.3	37	12	206	58	63	29	9.7	11	3.3	4.0
4	4.8	5.5	21	15	168	67	64	28	8.7	12	3.6	3.4
5	4.8	5.7	16	29	140	102	90	27	8.7	13	3.4	4.8
6	4.8	5.7	17	60	419	79	63	26	8.4	8.9	3.7	5.0
7	5.2	5.3	18	65	301	64	191	24	8.0	7.5	3.6	12
8	5.2	5.9	13	150	317	120	106	23	7.5	6.5	3.7	11
9	4.8	5.5	12	329	168	147	71	23	7.3	5.7	3.0	5.7
10	4.7	5.7	29	179	126	100	61	25	7.1	5.7	3.3	8.7
11	5.0	5.2	60	108	108	88	52	22	7.5	5.5	3.4	6.1
12	4.7	4.8	57	90	90	120	46	21	7.5	5.3	4.3	5.2
13	4.7	6.5	251	81	75	110	45	22	8.2	5.2	7.3	5.0
14	5.0	8.7	356	124	73	106	43	24	10	4.7	4.8	4.3
15	5.2	14	218	126	78	97	45	41	8.8	4.3	6.9	4.7
16	4.7	10	90	133	78	91	90	40	8.2	5.5	8.7	4.5
17	4.5	7.1	63	122	65	76	65	52	6.5	5.3	5.3	5.2
18	4.7	6.1	48	112	73	68	44	32	6.7	5.0	4.2	5.7
19	4.7	5.3	39	88	116	63	39	29	6.5	4.5	4.2	4.8
20	4.7	4.5	25	100	108	56	44	23	5.7	4.0	4.2	4.7
21	4.7	4.0	25	83	83	54	38	22	5.9	4.2	5.3	4.5
22	4.5	4.2	24	76	73	52	35	25	5.0	4.0	7.7	4.5
23	4.3	4.5	22	53	68	52	38	22	7.7	4.3	11	4.5
24	4.2	7.3	20	43	71	54	32	21	7.3	4.3	7.5	4.3
25	6.3	102	18	38	104	48	30	19	8.9	3.6	5.9	4.2
26	6.1	129	17	45	138	45	29	19	7.7	3.9	4.7	4.5
27	5.3	29	16	44	126	41	54	18	6.7	3.9	4.3	3.9
28	5.7	22	16	43	112	40	76	18	5.5	3.9	4.5	4.5
29	8.0	21	16	53	---	37	48	15	5.9	4.2	4.7	4.8
30	10	14	17	45	---	36	38	14	5.2	3.9	5.3	4.5
31	7.3	---	15	41	---	35	---	13	---	3.7	6.1	---
TOTAL	165.1	471.3	1698	2510	3594	2277	1883	781	230.0	175.5	154.9	157.5
MEAN	5.33	15.7	54.8	81.0	128	73.5	62.8	25.2	7.69	5.66	5.00	5.25
MAX	10	129	356	329	419	147	191	52	12	13	11	12
MIN	4.2	4.0	12	10	40	35	29	13	5.0	3.6	3.0	3.4
CFSM	.04	.12	.42	.61	.97	.56	.48	.19	.06	.04	.04	.04
IN.	.05	.13	.48	.71	1.01	.64	.53	.22	.07	.05	.04	.04
AC-FT	327	935	3370	4980	7130	4520	3730	1550	458	348	307	312

CAL YR 1977 TOTAL 4438.2 MEAN 12.2 MAX 356 MIN 2.1 CFSM .09 IN 1.25 AC-FT 8800
WTR YR 1978 TOTAL 14098.1 MEAN 38.6 MAX 419 MIN 3.0 CFSM .29 IN 3.97 AC-FT 27960

13348000 SOUTH FORK PALOUSE RIVER AT PULLMAN, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974, 1977 to current year.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
OCT , 1977							
26...	0830	9.2	--	6.5	8.3	--	84
NOV							
29...	1115	19	230	6.3	7.0	--	240
DEC							
20...	0800	21	250	7.2	.2	--	210
JAN , 1978							
24...	0730	46	255	6.8	1.5	30	120
FEB							
14...	0815	60	210	7.0	2.2	55	185
MAR							
28...	0815	40	250	7.2	11.4	35	78
APR							
25...	0930	30	275	8.0	14.0	20	43
MAY							
23...	0815	22	275	8.2	11.6	--	70
JUN							
20...	0800	5.7	400	8.0	14.2	25	70
JUL							
25...	0815	3.9	550	8.4	18.8	20	40
AUG							
22...	0820	6.7	450	8.1	14.4	30	85
SEP							
26...	0845	4.7	520	8.4	13.1	5	6

DATE	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977						
26...	--	4.6	1.6	5.2	4.4	13
NOV						
29...	--	4.4	.68	1.5	1.0	3.1
DEC						
20...	--	7.2	.60	1.0	.77	2.4
JAN , 1978						
24...	13.0	7.9	.39	.71	.56	1.7
FEB						
14...	12.9	3.8	.43	.56	.39	1.2
MAR						
28...	10.2	4.9	.10	.58	.38	1.2
APR						
25...	9.5	4.5	.13	.87	.82	2.5
MAY						
23...	10.5	3.0	.19	.72	.68	2.1
JUN						
20...	9.1	2.4	.30	1.2	1.1	3.4
JUL						
25...	9.0	3.8	.13	3.6	3.5	11
AUG						
22...	10.1	3.6	.02	2.4	2.2	6.7
SEP						
26...	10.1	7.8	.14	4.7	4.6	14

13348500 MISSOURI FLAT CREEK AT PULLMAN, WA

LOCATION.--Lat 46°43'59", long 117°10'47", on line between secs.5 and 6, T.14 N., R.45 E., Whitman County, Hydrologic Unit 17060108, on left bank at State Street crossing in Pullman, 600 ft (183 m) upstream from mouth.

DRAINAGE AREA.--27.1 mi^2 (70.2 km^2).

PERIOD OF RECORD.--February 1934 to September 1940, January 1960 to current year.

REVISED RECORDS.--WSP 1317: Drainage area.

GAGE.--Water-stage recorder and concrete control with a 90° V-notch weir inside a 2-ft (0.61 m) Parshall flume. Datum of gage is 2,328.4 ft (709.70 m) above mean sea level. Prior to Mar. 15, 1934, nonrecording gage at site 20 ft (6.1 m) upstream at same datum.

REMARKS.--Records good. No regulation or diversion. Waste water from swimming pools at Washington State University is discharged into stream above station.

AVERAGE DISCHARGE.--24 years (water years 1935-40, 1961-78), 8.37 ft^3/s (0.237 m^3/s), 6,060 acre-ft/yr (7.47 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,220 ft^3/s (34.6 m^3/s) Jan. 21, 1972, gage height, 6.65 ft (2.027 m); no flow for part of Nov. 21, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 26, 1948, reached a stage of 6.3 ft (1.92 m), discharge, 1,500 ft^3/s (42.5 m^3/s) by slope-area measurement, 0.9 mi (1.4 km) upstream. Flood of Jan. 24, 1959, reached a stage of 4.57 ft (1.393 m), from floodmarks, discharge, 870 ft^3/s (24.6 m^3/s) by slope-area measurement, 0.25 mi (0.40 km) upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft (7.08 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 13	1915	*334	9.46	*3.11	0.948	Feb. 7	2100	288	8.16	2.89	0.881

Minimum discharge, 0.13 ft^3/s (0.004 m^3/s) Oct. 21, 22, 24, 25; minimum gage height, 0.33 ft (0.101 m) Aug. 6, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.34	.95	7.6	2.0	9.4	27	46	3.5	.85	.76	.25	.30
2	.27	.95	22	1.6	21	17	19	2.9	.79	.73	.27	.29
3	.22	.32	6.4	1.6	86	11	11	2.6	.73	2.5	.25	.25
4	.21	.29	2.5	2.8	41	19	19	2.4	.64	2.5	.27	.22
5	.19	.40	1.7	3.9	31	31	19	2.3	.64	1.1	.22	.22
6	.21	.27	2.4	8.8	102	19	11	2.2	.70	.89	.21	.30
7	.29	.30	2.1	12	104	16	49	2.1	.54	.73	.21	2.6
8	.18	.24	1.9	56	64	37	18	1.9	.56	.64	.22	.95
9	.16	.42	1.5	101	40	30	10	1.9	.54	.59	.25	.46
10	.16	.27	5.4	43	29	20	8.2	2.1	.49	.56	.27	.95
11	.15	.25	23	27	27	19	7.0	1.9	.46	.54	.27	.38
12	.14	.24	16	24	22	26	5.4	2.0	.51	.44	.85	.34
13	.14	.95	119	23	16	26	4.9	1.8	.73	.34	.32	.38
14	.16	.85	104	47	20	20	4.9	2.2	.56	.34	.46	.34
15	.25	1.8	63	38	19	24	5.9	7.6	.49	.32	1.9	.34
16	.64	.64	19	36	24	19	17	7.6	.46	.27	.49	.30
17	.64	.51	14	31	17	15	9.4	10	.38	.29	.40	.89
18	.64	.40	9.4	28	22	12	5.9	4.4	.36	.29	.32	.40
19	.64	.32	7.6	20	37	11	4.4	2.8	.30	.29	.27	.40
20	.49	.25	4.9	26	25	9.4	7.0	2.2	.30	.42	.38	.36
21	.14	.22	3.5	19	19	8.8	5.4	2.0	.30	.32	.54	.40
22	.14	.22	3.1	15	17	8.8	4.4	1.8	.29	.25	1.4	.36
23	.14	.22	3.1	11	16	9.4	4.9	1.7	.89	.27	.49	.34
24	.16	1.8	2.8	8.8	16	9.4	3.9	1.5	.56	.22	.38	.32
25	.95	21	2.6	7.6	35	7.6	3.1	1.4	.64	.29	.46	.30
26	.22	28	2.4	8.8	43	6.4	2.9	1.3	.46	.25	.29	.30
27	.27	4.9	2.4	9.4	36	5.4	8.8	1.4	.36	.25	.25	.27
28	.22	2.5	2.3	10	29	4.9	19	1.3	.40	.27	.27	.38
29	1.3	2.8	2.3	15	---	3.9	7.0	1.1	.34	.24	.29	.27
30	1.3	1.9	2.4	11	---	3.5	4.9	1.0	.32	.21	.70	.27
31	.40	---	2.4	9.4	---	3.5	---	.92	---	.24	.44	---
TOTAL	11.36	74.18	462.7	656.9	967.4	480.0	346.3	81.82	15.59	17.35	13.59	13.88
MEAN	.37	2.47	14.9	21.2	34.6	15.5	11.5	2.64	.52	.56	.44	.46
MAX	1.3	28	119	101	104	37	49	10	.89	2.5	1.9	2.6
MIN	.14	.22	1.5	1.6	9.4	3.5	2.9	.92	.29	.21	.21	.22
AC-FT	23	147	918	1300	1920	952	687	162	31	34	27	28

CAL YR 1977 TOTAL 770.26 MEAN 2.11 MAX 119 MIN .05 AC-FT 1530
WTR YR 1978 TOTAL 3141.07 MEAN 8.61 MAX 119 MIN .14 AC-FT 6230

13349210 PALOUSE RIVER BELOW SOUTH FORK, AT COLFAX, WA

LOCATION.--Lat 46°53'23", long 117°22'09", in NW¼SW¼ sec.11, T.16 N., R.43 E., Whitman County, Hydrologic Unit 17060108, on left bank at Colfax, 750 ft (229 m) downstream from South Fork, 0.3 mi (0.5 km) upstream from bridge on U.S. Highway 295, and at mile 89.5 (144.0 km).

DRAINAGE AREA.--796 mi^2 (2,062 km^2).

PERIOD OF RECORD.--October 1963 to June 1973, October 1975 to current year.

REVISED RECORDS.--WSP 2134: 1967, 1968.

GAGE.--Water-stage recorder. Datum of gage is 1,932.22 ft (588.941 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records fair. Small diversions for irrigation above station. Slight regulation by millpond and city of Moscow, Idaho, sewage disposal plant.

AVERAGE DISCHARGE.--12 years (water years 1964-72, 1976-78) 390 ft^3/s (11.04 m^3/s), 282,600 acre-ft/yr (348 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,700 ft^3/s (416 m^3/s) Jan. 21, 1972, gage height, 17.98 ft (5.480 m); minimum, 1.7 ft^3/s (0.048 m^3/s) Aug. 3, 23, 1966; minimum gage height, 0.88 ft (0.268 m) Aug. 3, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 3, 1963, reached a stage of 16.49 ft (5.026 m) discharge, 14,500 ft^3/s (411 m^3/s), by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 3,000 ft^3/s (85.0 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 14	2030	*5,040	143	*10.65	3.246	Feb. 8	0015	4,850	137	10.47	3.191

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	53	208	100	360	794	858	547	174	39	14	31
2	43	60	282	110	500	678	1250	476	144	41	15	27
3	38	52	969	140	700	516	927	419	130	44	17	26
4	33	49	558	160	1000	509	748	362	118	63	14	31
5	29	50	362	500	1250	639	826	339	109	63	12	27
6	27	42	270	700	1800	640	729	314	102	89	12	27
7	25	37	233	950	2400	536	812	290	99	81	11	36
8	26	33	223	2500	2970	626	791	276	99	60	13	50
9	24	36	208	2000	1870	1210	590	272	90	46	15	44
10	23	38	200	1200	1360	1110	498	259	76	67	12	73
11	24	38	321	850	1050	943	442	252	74	64	11	78
12	26	33	703	620	828	928	415	218	78	61	14	58
13	24	35	1150	590	654	833	387	212	76	45	17	47
14	22	38	3520	800	569	865	374	222	73	44	25	42
15	22	45	2660	900	553	724	363	331	68	34	24	40
16	19	80	1650	1000	527	679	404	438	70	33	28	38
17	18	92	1020	1000	502	596	497	617	64	33	38	38
18	19	73	712	1000	474	588	400	504	59	35	31	35
19	20	47	544	900	547	617	346	392	62	38	40	31
20	19	36	403	880	548	650	339	336	53	36	42	31
21	20	46	330	850	498	654	339	289	45	36	44	30
22	20	38	311	800	469	677	309	280	44	35	38	33
23	18	32	280	700	459	719	303	303	43	25	48	33
24	16	34	238	540	477	822	303	247	46	23	61	30
25	18	92	215	470	593	795	279	259	51	20	71	29
26	22	495	200	450	790	706	265	240	49	17	60	30
27	22	330	180	430	897	635	284	212	51	17	39	27
28	20	248	160	420	868	593	710	203	49	17	31	27
29	25	191	140	420	---	627	917	192	48	15	30	28
30	38	202	120	400	---	606	656	186	45	15	30	29
31	38	---	95	360	---	581	---	186	---	13	32	---
TOTAL	775	2683	18465	22730	25513	22096	16361	9673	2289	1249	889	1106
MEAN	25.0	89.4	596	733	911	713	545	312	76.3	40.3	28.7	36.9
MAX	43	495	3520	2500	2970	1210	1250	617	174	89	71	78
MIN	16	32	95	100	360	509	265	186	43	13	11	26
AC-FT	1540	5320	36630	45080	50610	43830	32450	19190	4540	2480	1760	2190

CAL YR 1977 TOTAL 42562.3 MEAN 117 MAX 3520 MIN 3.2 AC-FT 84420
WTR YR 1978 TOTAL 123829.0 MEAN 339 MAX 3520 MIN 11 AC-FT 245600

13351000 PALOUSE RIVER AT HOOPER, WA

LOCATION.--Lat 46°45'31", long 118°08'52", in NE¼SE¼ sec.27, T.15 N., R.37 E., Whitman County, Hydrologic Unit 17060108, on left bank 150 ft (46 m) downstream from bridge on State Highway 26 at Hooper, 0.3 mi (0.5 km) upstream from Cow Creek, 3.5 mi (5.6 km) downstream from right bank tributary, 6.0 mi (9.7 km) downstream from Willow Creek, and at mile 19.6 (31.5 km).

DRAINAGE AREA.--2,500 mi^2 (6,475 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to August 1897 (gage heights only), September 1897 to December 1899, April 1900 to April 1907, June 1908 to July 1912, March 1913 to March 1916, February 1951 to current year. Prior to 1904 sometimes published as "near Hooper."

REVISED RECORDS.--WSP 1287: 1897-1904, 1910(M), 1915-16(M). WSP 1447: 1910. WSP 1934: Drainage area. WSP 1447: 1906(M). WSP 1567: 1908-9(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,040.8 ft (317.24 m), National Geodetic Vertical Datum of 1929. Apr. 1 to Aug. 31, 1897, nonrecording gage at site 2.5 mi (4.0 km) upstream at different datum. Sept. 9, 1897, to March 1916, various nonrecording gages at site 1.5 mi (2.4 km) upstream from present site at different datums. Feb. 8 to Mar. 28, 1951, nonrecording gage at present site and datum.

REMARKS.--Records good. Diversions above station for irrigation and municipal use.

AVERAGE DISCHARGE.--40 years (water years 1898-99, 1901-06, 1909-11, 1914-15, 1952-78), 616 ft^3/s (17.45 m^3/s), 446,300 acre-ft/yr (550 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,500 ft^3/s (949 m^3/s) Feb. 4, 1963, gage height, 19.13 ft (5.831 m) from rating curve extended above 18,000 ft^3/s (510 m^3/s) on basis of slope-area measurement of peak flow; no flow part or all of each day June 25, 1910, Aug. 1-17, Aug. 28 to Sept. 4, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,700 ft^3/s (105 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 15	0900	4,830	137	10.16	3.097	Feb. 8	1200	*4,960	140	*10.25	3.124
Jan. 9	1500	3,720	105	9.35	2.850						

Minimum discharge, 11 ft^3/s (0.31 m^3/s) Aug. 11, gage height, 2.95 ft (0.899 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	79	249	100	529	1400	820	987	276	89	27	45
2	69	92	265	111	517	1310	1440	770	265	92	25	46
3	67	94	330	126	639	1060	1520	661	247	92	22	48
4	61	111	874	163	1450	902	1240	589	230	90	17	45
5	65	104	565	216	1430	935	1130	541	216	110	14	44
6	62	98	426	557	1660	1150	1190	509	200	118	14	52
7	62	100	342	695	2980	1080	1050	473	188	111	14	54
8	60	98	288	1020	3790	959	1330	437	178	735	15	55
9	57	93	265	2650	3080	1310	1110	402	165	207	16	60
10	57	90	254	2100	2400	1850	902	381	154	138	14	67
11	57	90	267	1330	1920	1630	785	357	146	122	12	71
12	55	92	423	1030	1630	1460	715	351	143	126	12	72
13	54	96	825	863	1350	1480	648	345	146	124	13	87
14	55	96	3160	841	1130	1420	603	354	152	111	15	80
15	59	97	3750	1040	1040	1380	577	377	145	97	22	69
16	60	97	2610	1140	1000	1220	577	465	141	85	25	62
17	59	100	1740	1260	935	1130	700	661	134	82	26	65
18	60	124	1260	1260	858	1020	765	863	131	78	28	63
19	60	132	959	1260	852	965	598	730	121	73	25	61
20	61	87	765	1170	1030	983	533	603	116	69	35	59
21	60	78	549	1170	1000	1010	513	521	105	67	40	59
22	59	82	477	1100	891	1010	509	461	97	63	48	59
23	60	86	420	1040	847	1010	489	430	93	55	49	60
24	60	93	350	902	810	1080	473	433	85	48	49	62
25	63	114	300	750	858	1190	465	388	85	41	52	63
26	65	163	280	661	1090	1110	440	374	90	38	53	59
27	65	521	250	643	1400	995	419	374	87	37	62	53
28	67	437	220	621	1460	913	458	345	89	32	63	51
29	69	339	200	594	---	858	1110	327	89	32	56	51
30	69	260	150	607	---	825	1130	312	96	31	49	52
31	71	---	120	585	---	800	---	294	---	29	47	---
TOTAL	1914	4143	22933	27605	38576	35445	24239	15035	4410	3222	959	1774
MEAN	61.7	138	740	890	1378	1143	808	485	147	104	30.9	59.1
MAX	71	521	3750	2650	3790	1850	1520	987	276	735	63	87
MIN	54	78	120	100	517	800	419	294	85	29	12	44
AC-FT	3800	8220	45490	54750	76520	70310	48080	29820	8750	6390	1900	3520

CAL YR 1977 TOTAL 57873.0 MEAN 159 MAX 3750 MIN 1.7 AC-FT 114800
WTR YR 1978 TOTAL 180255.0 MEAN 494 MAX 3790 MIN 12 AC-FT 357500

13351000 PALOUSE RIVER AT HOOPER, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years, 1959-71, 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1961 to September 1971.
SUSPENDED SEDIMENT: October 1961 to September 1971.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)
OCT , 1977								
26...	1000	65	--	6.9	9.9	--	16	--
NOV								
29...	1315	333	190	6.3	5.5	--	85	--
DEC								
20...	0930	760	185	7.0	1.2	--	85	--
JAN , 1978								
24...	0900	935	170	7.1	1.7	25	95	13.1
FEB								
21...	1205	1020	245	8.3	5.5	105	56	12.3
MAR								
20...	1250	1010	239	8.0	9.4	70	28	10.9
APR								
25...	1250	497	252	8.4	14.8	50	12	10.0
MAY								
23...	0935	444	200	8.1	15.0	10	48	9.1
JUN								
20...	0940	111	215	8.6	20.3	10	10	8.3
JUL								
25...	0915	41	234	8.2	29.4	10	15	7.3
AUG								
22...	0940	50	305	7.8	18.2	20	40	9.2
SEP								
26...	1000	61	230	8.6	15.2	25	35	9.6

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977								
26...	.56	.01	.20	.53	.73	.26	.14	.43
NOV								
29...	4.9	.03	.72	5.8	6.5	1.6	.24	.74
DEC								
20...	2.5	.04	.40	1.0	1.4	.36	.16	.49
JAN , 1978								
24...	4.4	.03	.23	.53	.76	.42	.32	.98
FEB								
21...	4.2	.04	.24	.68	.92	.42	.15	.46
MAR								
20...	4.0	.04	.23	.44	.67	.29	.13	.40
APR								
25...	2.3	.01	.08	.37	.45	.12	.08	.25
MAY								
23...	2.1	.02	.20	1.0	1.2	.44	.21	.64
JUN								
20...	.37	.01	.18	.92	1.1	.28	.09	.28
JUL								
25...	.97	.02	.22	.62	.84	.23	.16	.49
AUG								
22...	.63	.01	.04	1.5	1.5	.30	.14	.43
SEP								
26...	1.4	.01	.12	.50	.62	.33	.32	.98

13351800 SPRAGUE LAKE NEAR SPRAGUE, WA

LOCATION.--Lat 47°16'47", long 118°01'26", in NE¼SE¼ sec.28, T.21 N., R.38 E., Lincoln County, Hydrologic Unit 17060108, on southeast shore 3.1 mi (5.0 km) southwest of Sprague.

DRAINAGE AREA.--289 mi^2 (749 km^2).

PERIOD OF RECORD.--September 1958 to current year. Prior to October 1960, published as Colville Lake near Sprague. Chemical analyses April 1975 to September 1975.

REVISED RECORDS.--WSP 1934: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 1, 1975, nonrecording gages at several sites, all at present datum except period Sept. 11, 1958 to Sept. 30, 1959, which was at datum 1,865.53 ft (568.614 m) higher.

REMARKS.--Some regulation by small dam at outlet. No known diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,881.93 ft (573.612 m) from high-water mark, occurred during the period Jan. 13-29, 1974; minimum observed, 1,875.14 ft (571.543 m) Nov. 2, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Lake reached an elevation at 1,881.75 ft (573.557 m) in March 1956 (from high-water mark).

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,879.73 ft (572.942 m) Apr. 28; minimum recorded elevation, 1,876.14 ft (571.847 m) Oct. 28.

ELEVATION, IN FEET ABOVE NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1876.16	1876.16	1876.16		---	1877.89	1879.26	1879.64	1879.32	1878.97	1878.49	1878.14
2	1876.16	1876.15	1876.20		---	1877.89	1879.29	1879.62	1879.31	1878.97	1878.67	1878.12
3	1876.16	1876.15	1876.22		---	1877.93	1879.27	1879.59	1879.30	1878.98	1878.65	1878.10
4	1876.16	1876.15	1876.20		---	1877.98	1879.28	1879.55	1879.29	1879.01	1878.63	1878.08
5	1876.16	1876.15	1876.18		---	1878.04	1879.30	1879.54	1879.28	1879.02	1878.64	1878.06
6	1876.16	1876.15	1876.20		1877.25	1878.08	1879.27	1879.52	1879.25	1879.01	1878.62	1878.06
7	1876.16	1876.15	1876.23		1877.29	1878.11	1879.28	1879.52	1879.22	1878.99	1878.60	1878.07
8	1876.16	1876.15	1876.20		1877.33	1878.18	1879.30	1879.51	1879.18	1878.99	1878.58	1878.08
9	1876.16	1876.15	1876.20		1877.37	1878.22	1879.31	1879.51	1879.18	1878.99	1878.57	1878.05
10	1876.16	1876.15	1876.22		1877.37	1878.27	1879.34	1879.52	1879.12	1878.98	1878.55	1878.05
11	1876.16	1876.15	1876.23		1877.38	1878.32	1879.39	1879.52	1879.08	1878.95	1878.52	1878.03
12	1876.16	1876.15	1876.25		1877.37	1878.38	1879.37	1879.47	1879.03	1878.93	1878.50	1878.01
13	1876.16	1876.15	1876.32		1877.39	1878.44	1879.39	1879.47	1879.07	1878.93	1878.48	1877.98
14	1876.16	1876.15	1876.40		1877.42	1878.47	1879.42	1879.48	1879.06	1878.92	1878.48	1877.98
15	1876.16	1876.15	1876.49		1877.44	1878.50	1879.44	1879.52	1879.06	1878.91	1878.49	1878.00
16	1876.16	1876.15	1876.46		1877.46	1878.54	1879.53	1879.50	1879.05	1878.92	1878.49	1877.94
17	1876.16	1876.15	1876.47		1877.48	1878.59	1879.52	1879.49	1879.04	1878.91	1878.48	1877.93
18	1876.16	1876.15	1876.48		1877.50	1878.63	1879.52	1879.48	1879.05	1878.89	1878.46	1877.92
19	1876.16	1876.15	1876.48		1877.52	1878.68	1879.53	1879.47	1879.03	1878.86	1878.43	1877.91
20	1876.16	1876.15	1876.46		1877.56	1878.72	1879.57	1879.47	1879.02	1878.86	1878.40	1877.90
21	1876.16	1876.15	1876.47		1877.60	1878.76	1879.60	1879.49	1879.03	1878.85	1878.39	1877.90
22	1876.16	1876.15	1876.49		1877.64	1878.81	1879.59	1879.47	1879.01	1878.84	1878.37	1877.90
23	1876.16	1876.15	---		1877.68	1878.87	1879.59	1879.44	1879.01	1878.82	1878.34	1877.88
24	1876.16	1876.15	---		1877.68	1878.94	1879.58	1879.44	1879.01	1878.80	1878.31	1877.86
25	1876.16	1876.15	---		1877.76	1878.97	1879.59	1879.43	1879.01	1878.77	1878.29	1877.87
26	1876.16	1876.15	---		1877.80	1878.99	1879.63	1879.41	1878.99	1878.75	1878.26	1877.86
27	1876.15	1876.15	---		1877.82	1879.05	1879.64	1879.40	1878.99	1878.76	1878.24	1877.87
28	1876.15	1876.15	---		1877.86	1879.07	1879.70	1879.41	1878.98	1878.74	1878.21	1877.85
29	1876.15	1876.16	---		---	1879.10	1879.69	1879.39	1878.98	1878.73	1878.18	1877.83
30	1876.16	1876.16	---		---	1879.15	1879.67	1879.36	1878.98	1878.72	1878.16	1877.83
31	1876.15	---	---		---	1879.16	---	1879.33	---	1878.71	1878.16	---
MEAN	1876.16	1876.15	---	---	---	1878.54	1879.46	1879.48	1879.10	1878.89	1878.45	1877.97
MAX	1876.16	1876.16	---	---	---	1879.16	1879.70	1879.64	1879.32	1879.02	1878.69	1878.14
MIN	1876.15	1876.15	---	---	---	1877.89	1879.26	1879.33	1878.98	1878.71	1878.16	1877.83

13353000 SNAKE RIVER BELOW ICE HARBOR DAM, WA

LOCATION.--Lat 46°14'53", long 118°52'43", in NE¼SW¼, sec.24, T.9 N., R.31 E., Walla Walla County, Hydrologic Unit 17060110, in powerhouse forebay pier P-1 on south side of Bay 1 at Ice Harbor Dam, 8.0 mi (12.9 km) northeast of Burbank, and at mile 9.7 (15.6 km).

DRAINAGE AREA.--108,500 mi^2 (281,000 km^2), approximately.

PERIOD OF RECORD.--October 1907 to March 1917 (gage heights only October 1907 to August 1909), March 1962 to current year. Published as "at Burbank" prior to 1911 and as "near Burbank" 1912-17. Chemical analyses October 1965 to September 1969, October 1971 to September 1972. For records collected at site 7.5 mi (12.1 km) downstream see station 13353200.

REVISED RECORDS.--WSP 1317: Drainage area.

GAGE.--Watt-hour meters on each turbine in Ice Harbor Dam powerhouse. Elevations are National Geodetic Vertical Datum of 1929. Oct. 2, 1907, to Mar. 31, 1917, nonrecording gage at site approximately 2 mi (3.2 km) downstream at datum 300 ft (91 m) higher. Mar. 23, 1962, to Sept. 30, 1968, water-stage recorder 1.0 mi (1.6 km) downstream National Geodetic Vertical Datum of 1929.

REMARKS.--Records computed from power output, flow over spillway, flow through fish ladder, and lockage records at Ice Harbor Dam. Diversions above station for irrigation of over 4,090,000 acres (16,600 km^2). Flow regulated by Lake Sacajawea and many storage reservoirs and powerplants upstream.

COOPERATION.--Records furnished by Corps of Engineers. Records not reviewed but four discharge measurements made by the Geological Survey to verify turbine and spillway ratings.

AVERAGE DISCHARGE.--23 years (water years 1910-16, 1963-78) 56,380 ft^3/s (1,597 m^3/s), 40,850,000 acre-ft/yr (50,400 hm^3/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 312,000 ft^3/s (8,840 m^3/s) June 19, 1974; no flow momentarily Aug. 27, 1965 (result of testing at Ice Harbor Dam).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1948, reached an elevation of 361.9 ft (110.31 m) at a site 0.7 mi (1.1 km) downstream from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 172,000 ft^3/s (4,870 m^3/s) June 7; maximum forebay elevation, 440.33 ft (134.213 m) May 3; minimum discharge, 100 ft^3/s (2.83 m^3/s) part of each day Dec. 22, 28, 31, Jan. 1; minimum forebay elevation, 436.70 ft (133.106 m) Dec. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25400	24100	42300	42600	43800	63300	94700	110000	92100	91900	28100	8200
2	25800	19300	47700	39600	38400	60800	124000	118000	82600	65800	33300	28400
3	29300	22400	53500	42100	31200	53500	110000	102000	83400	89600	28600	14100
4	30700	27800	55800	41200	34600	36400	99900	122000	93700	77300	29000	9100
5	30000	18700	53700	43000	40700	28900	86200	110000	114000	92400	19500	37900
6	20400	14200	38600	46000	49700	47600	79200	99300	119000	91000	13300	35900
7	19100	26400	46400	48200	57700	51800	73800	99300	143000	87500	34000	43300
8	16200	20800	40700	34500	52100	60500	64800	99700	143000	72900	20800	41200
9	15400	24800	51800	46100	63000	59900	76900	95500	148000	67800	29100	34200
10	24100	25100	39600	47900	57200	64700	68100	81700	143000	83200	24600	9100
11	21200	12900	36100	50200	67600	60800	67500	100000	118000	78400	17400	19900
12	20900	21500	49300	46500	60300	61100	66700	107000	114000	66600	14400	34700
13	23700	16700	48600	51600	57200	68900	65600	95800	112000	64500	13300	36900
14	22600	24700	62400	48900	55800	61800	68000	97600	113000	41400	31400	39400
15	19300	17200	78900	47300	55300	51400	59200	108000	115000	65700	26700	34300
16	10700	24800	79600	55200	59900	60900	60800	112000	113000	34200	25200	37300
17	33400	35400	78600	55900	45300	65700	69400	115000	110000	52300	22000	33200
18	24900	36900	62200	58100	42400	64000	61200	112000	97700	53900	30300	37000
19	19000	21600	54300	61600	44900	54600	77400	99600	105000	49700	24600	47800
20	21100	28600	60600	55300	50500	44300	71500	94800	93500	43100	12500	33600
21	24200	43200	45200	54700	47200	68100	60400	91800	98700	37600	24700	39600
22	8200	45700	39500	51400	40300	84300	61300	98500	94200	34100	27600	44700
23	6300	36200	47500	51600	37900	80200	63000	110000	98200	14700	26900	26800
24	23600	14900	39000	49000	40600	79700	62100	101000	91300	42900	28600	18200
25	20700	27500	31500	49400	36000	63400	64100	103000	94000	29000	34300	39400
26	21900	19600	43400	39000	41500	78000	67500	96700	86500	38100	24700	30200
27	32800	34500	54000	55500	48800	73100	86400	86700	95400	30300	25800	39200
28	22100	38100	37400	40800	57900	80900	119000	79200	92800	35100	34700	42100
29	31000	41900	54600	34800	---	90900	111000	91700	89900	24800	37600	37300
30	28600	51300	56000	46600	---	91900	108000	85000	91700	19400	30500	20400
31	32000	---	41000	43800	---	91500	---	85900	---	34200	34800	---
TOTAL	704600	817200	1578600	1478400	1357800	2002900	2347700	3108800	3185700	1709400	808300	953400
MEAN	22730	27240	50920	47690	48490	64610	78260	100300	106200	55140	26070	31780
MAX	33400	51300	79600	61600	67600	91900	124000	122000	148000	92400	37600	47800
MIN	6300	12900	31500	34500	31200	28900	59200	79200	82600	14700	12500	8200
AC-FT	1398000	1621000	3131000	2932000	2693000	3973000	4657000	6166000	6319000	3391000	1603000	1891000

CAL YR 1977 TOTAL 10199900 MEAN 27940 MAX 79600 MIN 3300 AC-FT 20230000
WTR YR 1978 TOTAL 20052800 MEAN 54940 MAX 148000 MIN 6300 AC-FT 39770000

13353200 SNAKE RIVER AT BURBANK, WA
(National stream-quality accounting network station)

LOCATION.--Lat 46°12'59", long 119°01'22", in NE¼SW¼ sec.35, T.9 N., R.30 E., Franklin County, Hydrologic Unit 17060110, at U.S. Highway 395/410 bridge at Burbank, 2.2 mi (3.5 km) upstream from mouth and 7.5 mi (12.1 km) downstream from Ice Harbor Dam.

DRAINAGE AREA.--108,800 mi^2 (281,800 km^2).

PERIOD OF RECORD.--Water years 1960-69, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1973 to current year.
WATER TEMPERATURES: April 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since March 1973.

REMARKS.--July 1960 to August 1962, at site 0.7 mi downstream and August 1962 to September 1963, at present site, published as "near Pasco"; and October 1963 to September 1965, at present site and published as 13353000 "below Ice Harbor Dam". For records collected at site 7.5 mi (12.1 km) upstream see station 13353000. Flow data routed from station 13353000. Interruptions in the record were due to malfunctions of the instrument.

COOPERATION.--Water-discharge values furnished by the Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum recorded, 385 micromhos Jan. 14, 1975; minimum, 60 micromhos June 14-15, 1978.
WATER TEMPERATURES: Maximum, 24.0°C Aug. 3, 7, 8, 1973, Aug. 4, 1974; minimum recorded, 1.5°C Feb. 8-12, 1975.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 353 micromhos Nov. 26; minimum recorded, 60 micromhos June 14-15.
WATER TEMPERATURES: Maximum, 22.5°C Aug. 6, 8-11, 13, 14; minimum, 2.5°C Jan. 4-12.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT , 1977												
13...	0955	8500	292	7.5	15.7	4	--	--	2	8	99	0
NOV												
10...	1210	40000	298	7.9	11.6	3	--	--	2	8	97	8
DEC												
19...	1600	73000	162	7.2	4.5	150	--	12.6	K22	190	57	4
JAN , 1978												
17...	1015	45000	297	8.1	3.4	15	--	12.1	3	57	100	3
FEB												
24...	1545	49000	211	7.3	4.9	20	--	11.0	<1	13	86	8
MAR												
22...	1430	85000	219	7.9	8.0	28	--	13.6	1	5	82	10
APR												
20...	1200	95000	166	8.0	10.3	7	--	11.7	3	2	63	1
MAY												
01...	1430	107000	162	7.9	11.6	5	--	13.0	1	5	61	0
JUN												
02...	1015	55000	81	7.3	12.1	--	5.2	11.5	2	1	44	5
JUL												
10...	1600	95000	94	7.8	18.0	--	3.9	9.0	5	5	40	5
AUG												
08...	1000	11500	119	7.9	--	--	2.2	6.8	77	21	44	3
SEP												
06...	1030	20000	174	8.1	20.6	--	1.0	6.8	60	54	66	4

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT , 1977												
13...	24	9.4	24	34	1.1	3.2	120	0	98	6.7	33	13
NOV												
10...	23	9.7	25	35	1.1	3.4	120	0	98	2.4	49	15
DEC												
19...	14	5.4	23	46	1.3	1.8	65	0	53	6.6	18	6.7
JAN , 1978												
17...	24	10	23	32	1.0	2.9	120	0	98	1.5	36	16
FEB												
24...	21	8.2	16	28	.8	2.5	95	0	78	7.6	23	8.9
MAR												
22...	21	7.1	14	26	.7	2.4	88	0	72	1.8	25	8.2
APR												
20...	16	5.5	11	27	.6	1.9	75	0	62	1.2	12	6.6
MAY												
01...	16	5.1	11	27	.6	1.9	75	0	62	1.5	16	6.7
JUN												
02...	14	2.2	6.0	22	.4	1.2	--	--	39	--	6.8	--
JUL												
10...	11	3.1	4.0	17	.3	1.2	--	--	35	--	9.4	3.9
AUG												
08...	12	3.4	8.1	28	.5	1.5	--	--	41	--	11	4.2
SEP												
06...	18	5.1	14	31	.8	1.9	--	--	62	--	17	8.0

K Results based upon colony counts outside the ideal range.

13353200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)
OCT . 1977												
13...	.4	15	167	181	.23	3830	9	.21	.00	--	--	--
NOV												
10...	.4	17	178	193	.24	19200	4	.31	.00	--	--	--
DEC												
19...	.2	19	105	120	.14	20700	223	.52	.00	--	--	--
JAN . 1978												
17...	.3	22	187	194	.25	22700	31	.64	.01	--	--	--
FEB												
24...	.3	24	152	151	.21	20100	18	1.1	.03	.09	.12	.04
MAR												
22...	.2	22	148	143	.20	34000	15	1.0	.03	.24	.27	.18
APR												
20...	.2	19	116	109	.16	29800	16	.70	.05	.08	.13	.02
MAY												
01...	.3	19	110	113	.15	31800	11	.27	.03	.39	.42	.20
JUN												
02...	.2	12	133	--	.18	19800	21	.04	.01	--	--	--
JUL												
10...	.2	11	65	68	.09	16700	16	.06	.00	.17	.17	.03
AUG												
08...	.2	12	81	77	.11	2520	2	.08	.00	.13	.13	.06
SEP												
06...	.2	12	110	113	.15	5940	6	.12	.01	.29	.30	.00

DATE	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT . 1977											
13...	.18	--	--	.04	.04	--	--	--	2	46	94
NOV											
10...	.15	--	--	.06	.05	2.4	--	--	4	432	94
DEC											
19...	.24	--	--	.32	.08	--	--	--	222	43800	98
JAN . 1978											
17...	.17	--	--	.10	.06	--	7.6	.6	21	2550	99
FEB											
24...	.08	1.2	5.4	.09	.06	3.5	--	--	20	2650	96
MAR											
22...	.09	1.3	5.6	.10	.07	3.3	--	--	18	4130	96
APR											
20...	.11	.83	3.7	.05	.01	--	2.9	.9	12	3080	98
MAY											
01...	.22	.69	3.1	.10	.04	2.9	--	--	12	3470	97
JUN											
02...	.79	--	--	.03	.02	2.5	--	--	12	1780	96
JUL											
10...	.14	.23	1.0	.01	.01	--	14	.5	6	1540	95
AUG											
08...	.07	.21	.93	.01	.01	2.1	--	--	7	217	100
SEP											
06...	.31	.42	1.9	.03	.03	2.2	--	--	5	270	100

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)
JAN . 1978										
17...	1015	2	0	3	100	0	100	5	4	1
APR										
20...	1200	3	0	2	200	0	200	7	1	6
JUL										
10...	1600	2	0	2	300	100	200	--	--	--

13355200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
JAN . 1978										
17...	20	20	0	0	0	0	10	7	3	1000
APR										
20...	10	10	0	0	0	0	5	2	3	780
JUL										
10...	0	0	0	2	1	1	26	11	15	470

DATE	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)
JAN . 1978										
17...	130	29	22	7	30	20	10	.0	.0	.3
APR										
20...	70	26	0	36	30	20	10	.1	.0	.0
JUL										
10...	50	--	--	--	20	20	0	.0	.0	.1

DATE	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
JAN . 1978									
17...	0	0	0	0	0	0	30	0	40
APR									
20...	0	0	0	0	0	0	20	10	10
JUL									
10...	0	0	0	0	0	0	60	30	30

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	261	259	260	283	280	282	345	336	342	223	219	221
2	266	264	267	283	281	282	337	326	332	232	223	227
3	274	272	273	281	278	280	326	322	324	239	231	234
4	281	279	280	281	278	279	331	323	327	245	240	242
5	284	282	283	280	277	278	333	331	332	247	242	245
6	284	282	283	283	279	281	331	326	329	244	240	242
7	285	283	284	291	283	287	326	316	321	241	236	238
8	287	283	285	294	290	292	317	302	308	237	234	236
9	289	285	287	303	294	300	303	294	299	234	232	233
10	290	288	289	303	300	301	295	290	293	234	232	232
11	292	290	291	297	292	294	290	275	281	245	234	238
12	293	291	292	301	297	299	276	266	272	259	244	251
13	295	292	294	310	301	304	266	247	258	271	259	265
14	298	294	296	316	309	311	247	229	238	283	273	278
15	299	297	298	320	315	317	229	214	220	289	282	285
16	301	298	299	327	321	323	214	196	207	296	289	292
17	306	302	304	333	327	329	195	171	183	299	295	297
18	308	306	307	336	333	334	173	161	167	305	296	300
19	311	308	309	340	336	338	163	160	161	309	302	305
20	311	309	310	341	339	340	174	164	168	310	301	305
21	310	307	308	344	342	343	187	172	178	301	295	299
22	309	307	308	348	343	345	220	207	212	299	294	296
23	309	306	307	349	347	348	238	220	226	292	288	289
24	308	305	306	---	---	---	251	237	243	287	280	283
25	307	302	305	352	347	350	263	253	257	282	277	278
26	305	304	305	353	350	352	274	263	270	278	272	275
27	306	301	303	351	348	350	278	273	276	274	271	273
28	303	297	300	349	346	348	274	265	271	271	268	269
29	298	291	295	351	345	348	265	242	256	275	264	268
30	291	285	289	349	344	347	243	223	233	273	271	272
31	287	283	284	---	---	---	224	218	221	271	265	268
MONTH	311	259	294	353	277	317	345	168	258	310	219	266

13353200 SNAKE RIVER AT BURBANK, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	264	260	263	226	219	222	207	202	205	162	160	161
2	260	253	256	230	222	227	206	200	203	165	162	163
3	254	245	249	236	229	232	199	196	198	168	165	167
4	243	241	242	236	234	235	196	194	195	168	160	165
5	239	237	239	238	234	236	195	189	193	158	148	152
6	241	235	237	240	236	239	189	189	189	146	143	144
7	234	233	234	240	234	238	181	178	179	143	142	143
8	238	232	236	234	227	230	176	173	175	142	140	142
9	232	226	230	230	224	227	172	168	170	140	137	138
10	234	227	231	227	223	225	169	167	167	138	137	137
11	241	233	237	223	219	222	167	166	167	143	138	141
12	245	238	241	220	216	218	166	165	166	146	143	145
13	241	232	236	214	210	212	168	166	167	148	145	147
14	230	222	227	212	208	210	167	166	166	155	147	151
15	222	217	219	215	208	212	169	164	167	161	154	158
16	226	219	222	216	210	213	173	166	168	167	162	165
17	224	222	223	217	213	215	170	167	169	167	165	167
18	223	221	223	217	214	216	169	168	168	165	155	160
19	221	216	218	216	212	214	167	165	166	155	142	148
20	214	207	211	221	214	217	166	165	166	141	133	137
21	206	203	204	220	215	218	166	165	166	133	129	131
22	202	201	202	220	217	218	168	166	167	128	123	126
23	204	202	203	215	208	211	167	166	166	122	113	118
24	211	205	208	210	208	210	168	164	165	113	104	108
25	213	209	211	210	206	208	167	166	167	105	101	103
26	214	209	212	213	208	210	165	160	162	104	101	103
27	221	214	217	218	211	215	160	155	158	105	102	104
28	223	217	220	218	215	217	157	154	156	105	103	104
29	---	---	---	215	211	214	161	156	158	104	98	101
30	---	---	---	209	206	207	163	159	161	98	94	96
31	---	---	---	209	206	208	---	---	---	94	88	92
MONTH	264	201	227	240	206	219	207	154	172	168	88	136

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	88	82	85	94	92	94	117	114	115	172	164	167
2	83	81	82	93	90	93	117	115	116	172	166	169
3	83	81	82	91	88	89	119	117	118	174	169	171
4	85	83	84	89	85	87	120	117	118	179	172	174
5	88	84	86	87	83	85	122	117	119	179	175	177
6	89	88	89	91	86	88	120	117	119	183	174	178
7	89	89	89	96	91	93	119	117	118	186	182	185
8	89	88	89	98	96	98	119	117	118	192	187	190
9	89	85	88	98	95	97	121	118	119	190	187	189
10	85	74	79	98	96	97	125	121	122	190	187	189
11	73	69	71	98	96	97	128	125	126	211	186	197
12	69	65	67	97	96	97	131	128	130	210	207	209
13	64	61	62	97	94	95	133	131	132	210	207	209
14	61	60	61	95	93	94	133	129	132	212	208	210
15	62	60	61	93	89	91	131	126	129	213	210	212
16	63	61	62	91	89	90	133	129	131	214	211	213
17	64	62	63	91	90	91	134	131	133	214	211	213
18	62	61	61	95	90	93	137	133	135	216	213	214
19	64	61	62	95	93	94	138	135	136	---	---	---
20	70	64	67	99	95	97	138	133	135	---	---	---
21	77	71	75	100	98	99	140	134	137	---	---	---
22	81	77	79	102	100	101	142	136	139	---	---	---
23	82	80	81	104	102	103	146	140	143	---	---	---
24	84	82	83	104	102	103	147	143	146	---	---	---
25	87	84	85	105	103	104	154	145	149	216	210	213
26	90	88	89	106	104	105	168	150	157	215	207	212
27	90	89	90	109	106	107	172	166	169	216	211	214
28	92	90	91	110	107	109	171	155	164	218	213	215
29	94	92	93	110	109	110	160	153	156	220	214	217
30	95	94	94	113	110	112	162	157	159	221	217	218
31	---	---	---	115	112	114	166	158	162	---	---	---
MONTH	95	60	78	115	83	98	172	114	135	221	164	198
YEAR	353	60	199									

13355200 SNAKE RIVER AT BURBANK, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	NOV 10,77		MAR 22,78		MAY 1,78		JUN 2,78		JUL 10,78	
TIME	1210		1350		1430		1015		1600	
TOTAL CELLS/ML	350		960		2100		1100		2400	
DIVERSITY: DIVISION	1.5		1.0		1.4		0.8		1.4	
.CLASS	1.5		1.0		1.6		0.8		1.4	
..ORDER	2.1		1.7		2.1		1.6		2.0	
...FAMILY	2.7		2.9		2.8		2.4		2.8	
....GENUS	3.1		3.6		3.1		2.7		3.2	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	22	1
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	20	2	290	14	110	10	200	8
....SELENASTRUM	24	7	--	-	--	-	--	-	--	-
....TETRAEDRON	6	2	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	71#	20	39	4	--	-	89	8	--	-
....TETRASTRUM	--	-	--	-	--	-	89	8	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-	22	1
..ZYGNEMATALES										
...DESMIDIACEAE										
....STAURASTRUM	6	2	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....COSCINODISCUS	--	-	--	-	--	-	22	2	--	-
....CYCLOTELLA	65#	19	98	10	290	14	310#	29	270	11
....MELOSIRA	41	12	130	13	--	-	--	-	200	8
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	20	2	220	10	45	4	89	4
....COCCONEIS	6	2	20	2	--	-	--	-	22	1
....RHOICOSPHENIA	12	3	--	-	72	3	--	-	22	1
...CYMBELLACEAE										
....CYMBELLA	--	-	39	4	--	-	--	-	--	-
....EPITHEMIA	18	5	10	1	--	-	22	2	22	1
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	44	2
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	140	14	*	0	--	-	--	-
....FRAGILARIA	*	0	140	14	570#	28	--	-	110	5
....HANNAEA	--	-	--	-	72	3	--	-	22	1
....SYNEDRA	--	-	10	1	--	-	--	-	22	1
...GOMPHONEMATACEAE										
....GOMPHONEMA	6	2	10	1	--	-	89	8	89	4
...NAVICULACEAE										
....NAVICULA	6	2	59	6	--	-	--	-	160	7
....PINNULARIA	--	-	--	-	--	-	--	-	44	2
...NITZSCHIACEAE										
....NITZSCHIA	18	5	98	10	72	3	--	-	67	3
...SURIRELLACEAE										
....SURIRELLA	--	-	10	1	72	3	--	-	--	-
...TABELLARIACEAE										
....TABELLARIA	--	-	--	-	--	-	310#	29	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....DINOBRYON	--	-	--	-	72	3	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..HORMOGONALES										
...OSCILLATORIACEAE										
....PHORMIDIUM	71#	20	--	-	--	-	--	-	--	-
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	--	-	140	7	--	-	--	-
..HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	110	11	--	-	--	-	930#	39
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	--	-	20	2	220	10	--	-	22	1

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%
Additional phytoplankton data available from District office in Tacoma.

13353200 SNAKE RIVER AT BURBANK, WA..Continued

WATER QUALITY DATA

DATE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	LENGTH OF EXPO-SURE (DAYS)
OCT , 1977						
13...	0955	4.46	8.50	2.71	1.17	30
JAN , 1978						
17...	1015	.079	.157	.000	.000	29
APR						
28...	1200	11.4	14.6	7.40	.000	29
JUL						
10...	1600	13.0	15.4	39.0	11.0	39

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	18.0	17.0	17.5	13.0	13.0	13.0	8.0	8.0	8.0	4.0	3.5	3.5
2	18.0	17.0	17.5	13.0	12.5	12.5	8.0	8.0	8.0	3.5	3.0	3.5
3	17.5	17.0	17.0	12.5	12.0	12.5	8.0	7.5	7.5	3.5	3.0	3.0
4	17.5	16.5	17.0	12.5	12.0	12.5	7.5	7.5	7.5	3.0	2.5	3.0
5	17.0	16.5	17.0	12.5	12.0	12.0	7.5	7.0	7.5	3.0	2.5	2.5
6	17.0	16.5	16.5	12.0	12.0	12.0	7.0	7.0	7.0	2.5	2.5	2.5
7	17.0	16.5	16.5	12.0	11.5	12.0	7.0	6.5	7.0	2.5	2.5	2.5
8	16.5	16.0	16.5	12.0	11.5	11.5	6.5	6.5	6.5	2.5	2.5	2.5
9	16.5	16.0	16.5	11.5	11.5	11.5	6.5	6.0	6.0	2.5	2.5	2.5
10	16.5	15.5	16.0	11.5	11.5	11.5	6.0	6.0	6.0	2.5	2.5	2.5
11	16.5	15.5	16.0	11.5	11.0	11.0	6.0	5.5	6.0	2.5	2.5	2.5
12	16.5	15.5	16.0	11.5	11.0	11.5	6.0	5.5	6.0	2.5	2.5	2.5
13	16.5	16.0	16.0	11.5	11.0	11.0	6.0	6.0	6.0	3.0	2.5	3.0
14	16.0	15.5	16.0	11.0	11.0	11.0	6.0	5.5	5.5	3.0	3.0	3.0
15	16.0	15.5	15.5	11.0	11.0	11.0	5.5	5.5	5.5	3.0	3.0	3.0
16	16.0	15.5	15.5	11.0	10.5	10.5	5.5	5.0	5.0	3.5	3.0	3.5
17	16.0	15.5	15.5	10.5	10.5	10.5	5.0	5.0	5.0	3.5	3.5	3.5
18	16.0	15.0	15.5	10.5	10.0	10.0	5.0	5.0	5.0	3.5	3.5	3.5
19	16.0	15.5	15.5	10.0	9.5	10.0	5.0	5.0	5.0	3.5	3.5	3.5
20	15.5	15.0	15.5	9.5	9.0	9.5	5.0	5.0	5.0	3.5	3.5	3.5
21	15.5	15.0	15.5	9.5	8.5	9.0	5.0	4.5	4.5	4.0	3.5	4.0
22	15.5	15.0	15.0	9.0	8.5	8.5	4.5	4.5	4.5	4.0	4.0	4.0
23	15.0	15.0	15.0	8.5	8.0	8.5	4.5	4.5	4.5	4.0	4.0	4.0
24	15.5	14.5	15.0	8.0	8.0	8.0	4.5	4.5	4.5	4.5	4.0	4.0
25	15.0	14.5	15.0	8.0	8.0	8.0	4.5	4.0	4.5	4.5	4.0	4.0
26	15.0	14.5	14.5	8.5	8.0	8.0	4.5	4.0	4.0	4.5	4.0	4.5
27	14.5	14.0	14.5	8.0	8.0	8.0	4.5	4.0	4.0	4.5	4.5	4.5
28	14.5	14.0	14.0	8.0	8.0	8.0	4.5	4.0	4.0	4.5	4.5	4.5
29	14.0	14.0	14.0	8.0	8.0	8.0	4.0	4.0	4.0	4.5	4.5	4.5
30	13.5	13.0	13.5	8.0	8.0	8.0	4.0	4.0	4.0	4.5	4.5	4.5
31	13.5	13.0	13.0	---	---	---	4.0	4.0	4.0	4.5	4.5	4.5
MONTH	18.0	13.0	15.5	13.0	8.0	10.5	8.0	4.0	5.5	4.5	2.5	3.5

13355200 SNAKE RIVER AT BURBANK, WA..Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	4.5	4.5	4.5	5.0	5.0	5.0	9.5	9.0	9.0	11.5	11.5	11.5
2	4.5	4.5	4.5	5.0	4.5	5.0	9.0	9.0	9.0	12.0	11.5	11.5
3	4.5	4.5	4.5	5.0	4.5	5.0	9.5	9.0	9.0	12.5	12.0	12.0
4	4.5	4.5	4.5	5.0	4.5	4.5	9.5	9.5	9.5	12.5	12.0	12.0
5	4.5	4.5	4.5	5.0	4.5	4.5	10.0	9.5	9.5	12.0	12.0	12.0
6	5.0	4.5	4.5	5.0	4.5	4.5	10.0	9.5	9.5	12.0	11.5	12.0
7	5.0	4.5	5.0	5.0	4.5	4.5	10.0	9.5	10.0	12.0	11.5	12.0
8	5.0	4.5	5.0	5.0	5.0	5.0	10.0	9.5	10.0	12.5	12.0	12.0
9	5.0	4.5	5.0	5.5	5.0	5.5	10.0	9.5	10.0	12.5	12.0	12.0
10	5.0	4.5	4.5	6.0	5.5	5.5	10.0	9.5	10.0	12.5	12.0	12.0
11	4.5	4.5	4.5	6.0	5.5	5.5	10.5	9.5	10.0	12.0	12.0	12.0
12	4.5	4.5	4.5	6.0	5.5	6.0	10.0	10.0	10.0	12.0	12.0	12.0
13	4.5	4.5	4.5	6.0	5.5	6.0	10.0	9.5	10.0	12.0	11.5	11.5
14	4.5	4.5	4.5	6.0	6.0	6.0	10.0	9.5	10.0	11.5	11.5	11.5
15	4.5	4.5	4.5	6.5	6.0	6.0	10.0	10.0	10.0	12.0	11.5	11.5
16	4.5	4.5	4.5	6.5	6.0	6.0	10.0	9.5	9.5	12.0	12.0	12.0
17	4.5	4.5	4.5	6.5	6.0	6.0	10.0	9.5	10.0	12.5	12.0	12.5
18	4.5	4.5	4.5	6.5	6.0	6.5	10.0	9.5	10.0	13.0	12.5	12.5
19	4.5	4.5	4.5	6.5	6.0	6.5	10.0	9.5	10.0	13.0	12.5	12.5
20	4.5	4.5	4.5	7.0	6.5	6.5	10.5	10.0	10.0	13.0	12.5	13.0
21	4.5	4.5	4.5	7.0	6.5	7.0	10.5	10.0	10.0	13.5	13.0	13.0
22	4.5	4.5	4.5	7.5	7.0	7.0	10.5	10.0	10.5	13.5	13.0	13.0
23	5.0	4.5	5.0	7.5	7.5	7.5	11.0	10.5	10.5	13.5	13.0	13.0
24	5.0	5.0	5.0	7.5	7.5	7.5	11.0	10.5	11.0	13.0	12.5	12.5
25	5.0	5.0	5.0	7.5	7.5	7.5	11.0	11.0	11.0	12.5	12.0	12.5
26	5.0	5.0	5.0	8.0	7.5	7.5	11.0	11.0	11.0	12.5	12.0	12.0
27	5.0	5.0	5.0	8.0	7.5	8.0	11.0	11.0	11.0	12.5	12.0	12.5
28	5.0	5.0	5.0	8.0	7.5	8.0	11.0	11.0	11.0	13.0	12.5	13.0
29	---	---	---	9.0	8.0	8.5	11.5	11.0	11.0	13.5	13.0	13.0
30	---	---	---	9.0	8.5	9.0	11.5	11.0	11.5	13.5	13.0	13.0
31	---	---	---	9.0	9.0	9.0	---	---	---	13.5	13.0	13.0
MONTH	5.0	4.5	4.5	9.0	4.5	6.5	11.5	9.0	10.0	13.5	11.5	12.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.0	12.0	12.5	17.0	16.5	16.5	21.0	20.0	20.5	21.0	20.5	21.0
2	12.5	12.0	12.0	17.0	16.5	16.5	21.5	20.5	21.0	21.5	20.5	21.0
3	12.5	12.0	12.5	17.0	16.5	16.5	22.0	21.0	21.5	21.5	20.5	21.0
4	13.0	12.0	12.5	16.5	16.0	16.5	22.0	21.0	21.5	21.0	20.5	21.0
5	13.5	12.5	13.0	16.5	16.0	16.0	22.0	21.5	21.5	21.0	20.5	21.0
6	14.0	13.5	14.0	16.5	16.0	16.0	22.5	21.0	21.5	21.5	20.5	21.0
7	14.5	14.0	14.0	17.0	16.0	16.5	22.0	21.5	22.0	21.0	20.5	20.5
8	14.5	14.0	14.0	17.5	17.0	17.0	22.5	21.5	22.0	20.5	20.0	20.0
9	14.5	14.0	14.5	18.0	17.0	17.5	22.5	21.5	22.0	20.0	19.5	20.0
10	15.0	14.5	15.0	18.0	17.5	18.0	22.5	21.5	22.0	19.5	19.0	19.5
11	15.0	14.5	15.0	18.0	17.5	18.0	22.5	21.5	22.0	20.0	19.0	19.5
12	14.5	14.5	14.5	18.0	17.5	17.5	22.0	21.5	21.5	19.5	19.0	19.5
13	14.5	14.0	14.5	18.0	17.5	17.5	22.5	21.5	22.0	19.5	19.0	19.0
14	14.0	14.0	14.0	18.0	17.5	17.5	22.5	21.5	22.0	19.5	19.0	19.0
15	14.0	14.0	14.0	18.0	17.5	17.5	22.0	21.5	21.5	19.0	18.5	19.0
16	14.0	14.0	14.0	18.0	17.0	17.5	22.0	21.0	21.5	19.0	18.5	19.0
17	14.0	13.5	13.5	18.0	17.5	17.5	21.5	21.0	21.0	19.0	18.5	18.5
18	13.5	13.5	13.5	18.0	17.5	18.0	21.0	20.5	21.0	19.0	18.0	18.5
19	13.5	13.5	13.5	18.5	17.5	18.0	21.0	20.5	20.5	18.5	18.0	18.5
20	14.0	13.5	13.5	18.5	18.0	18.5	21.0	20.5	20.5	18.5	18.0	18.0
21	14.0	13.5	14.0	19.0	18.0	18.5	21.5	20.5	21.0	18.0	18.0	18.0
22	14.5	14.0	14.5	19.5	18.5	19.0	21.0	20.5	20.5	18.0	17.5	18.0
23	15.0	14.5	15.0	20.0	19.0	19.0	21.0	20.5	20.5	18.0	17.5	18.0
24	15.0	15.0	15.0	20.0	19.0	19.5	21.0	20.5	20.5	18.0	17.5	17.5
25	15.0	15.0	15.0	20.5	19.0	20.0	21.0	20.5	20.5	18.0	17.5	18.0
26	15.5	15.0	15.0	20.5	19.5	20.0	21.0	20.5	20.5	18.5	17.5	18.0
27	16.0	15.5	15.5	20.5	20.0	20.0	21.5	20.5	20.5	18.0	17.5	18.0
28	16.0	15.5	16.0	20.5	19.5	20.0	21.5	20.5	21.0	18.0	17.5	18.0
29	16.5	16.0	16.0	21.0	20.0	20.5	21.5	20.5	21.0	18.0	17.5	18.0
30	16.5	16.0	16.5	21.0	20.0	20.5	21.0	21.0	21.0	18.0	17.5	17.5
31	---	---	---	21.0	20.0	20.5	21.0	20.5	21.0	---	---	---
MONTH	16.5	12.0	14.0	21.0	16.0	18.0	22.5	20.0	21.0	21.5	17.5	19.0
YEAR	22.5	2.5	12.0									

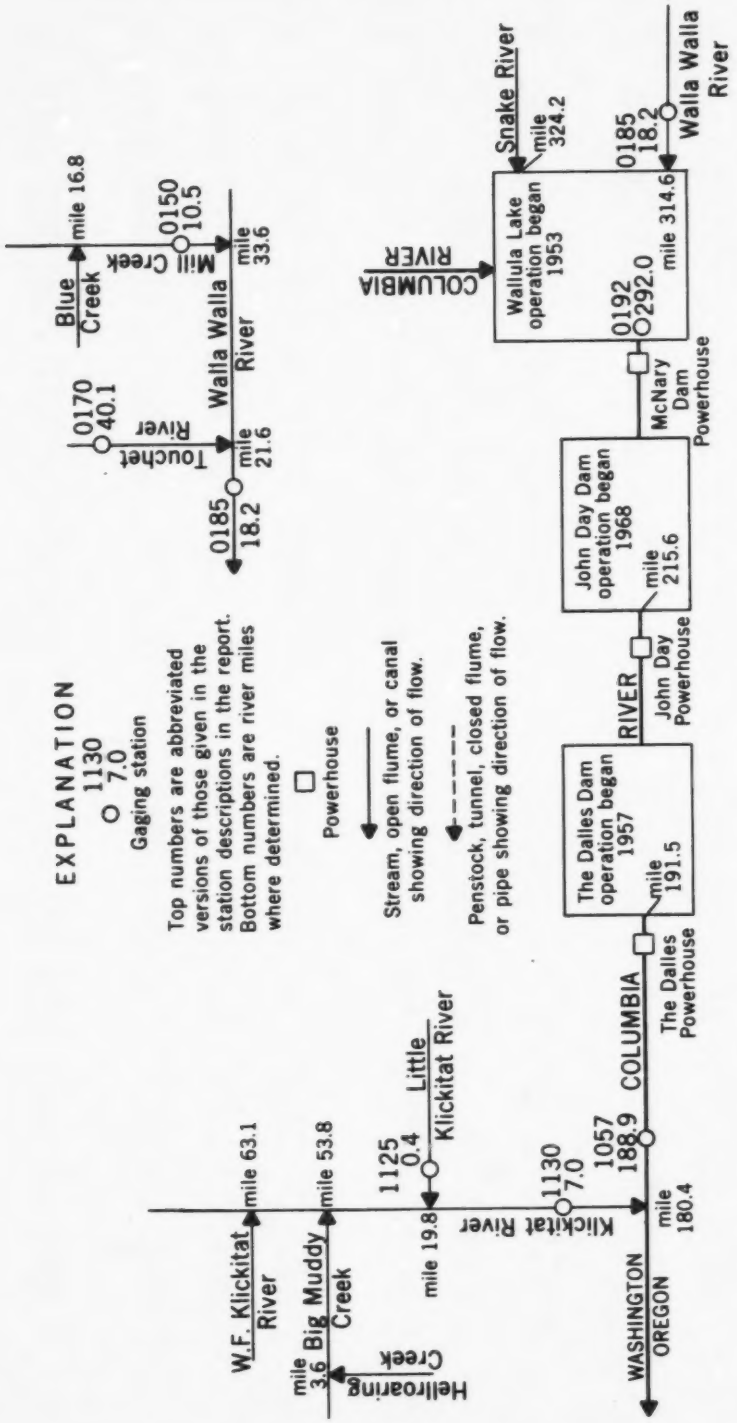

Figure 18. Gaging stations in Columbia River basin between Wallula Lake and Klickitat River.

14015000 MILL CREEK AT WALLA WALLA, WA

LOCATION.--Lat 46°04'35", long 118°16'21", in NE¼NW¼ sec.23, T.7 N., R.36 E., Walla Walla County, Hydrologic Unit 17070102, on left bank, 200 ft (61 m) downstream from diversion dam, 1.5 mi (2.4 km) east of Walla Walla, and at mile 10.5 (16.9 km).

DRAINAGE AREA.--95.7 mi^2 (247.9 km^2).

PERIOD OF RECORD.--April 1941 to current year.

REVISED RECORDS.--WSP 1288: Drainage area. WSP 1348: 1943, 1945-46.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,165.49 ft (355.241 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). April 1941 to June 11, 1941, nonrecording gage and June 11, 1941, to Jan. 22, 1957, water-stage recorder, at sites 0.8 mi (1.3 km) downstream at different datum.

REMARKS.--Records good except those below 20 ft^3/s (0.57 m^3/s) which are poor. Some regulation at diversion dam 200 ft (61 m) upstream from station where water is diverted into Yellowhawk and Garrison Creeks for stock and irrigation. Since Nov. 19, 1941, water has been diverted 1.0 mi (1.6 km) upstream into Mill Creek Reservoir for flood control with release of stored water after flood into Russell Creek, and is also diverted as required to replenish losses from seepage and evaporation from small recreation pool maintained in the reservoir. City of Walla Walla diverts water for municipal supply about 11 mi (18 km) upstream. Other small diversions above station for irrigation.

COOPERATION.--Gage-height record and 9 discharge measurements furnished by the Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,760 ft^3/s (78.2 m^3/s) Dec. 28, 1945, gage height, 4.0 ft (1.22 m), site and datum then in use; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,190 ft^3/s (33.7 m^3/s) Dec. 2, gage height, 4.35 ft (1.326 m); minimum daily, 0.03 ft^3/s (0.0008 m^3/s) Oct. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	4.1	90	43	99	132	155	221	.14	.36	1.3	1.2
2	1.8	14	493	38	108	118	147	161	.13	.32	1.3	1.1
3	1.1	12	712	65	139	107	110	128	.14	.21	1.3	1.1
4	.77	1.2	349	120	164	99	98	113	.15	.15	1.2	1.6
5	.67	.72	229	160	195	94	106	99	.43	.24	1.2	1.4
6	.54	.72	170	301	327	86	115	82	.41	.48	1.9	1.0
7	.49	.60	135	259	372	81	113	75	.28	.67	1.9	1.0
8	.48	.59	112	222	390	87	114	65	.51	9.4	1.5	.93
9	.41	.55	89	330	354	121	113	59	.36	7.4	1.4	.65
10	.39	.54	76	325	297	146	134	67	.37	1.1	1.2	.62
11	.37	.52	82	276	236	155	114	83	.40	.56	1.3	.64
12	.27	.52	92	218	188	149	94	74	.26	.40	1.4	.33
13	.27	3.4	554	184	154	131	85	60	.32	.38	1.1	.23
14	.27	8.3	933	184	126	115	79	70	.25	.47	.87	.38
15	.25	19	703	211	112	105	75	98	.15	.67	1.0	.18
16	.24	23	469	226	99	97	97	121	.16	.60	1.0	.15
17	.22	21	341	234	90	95	91	105	.28	.50	1.0	.15
18	.20	18	248	238	87	97	91	79	.28	1.2	1.0	.15
19	.18	14	212	215	84	101	98	76	.26	1.2	.92	.15
20	.20	14	151	174	83	102	101	63	.31	.87	1.0	.17
21	.18	13	129	150	82	101	98	42	.26	.82	1.0	.29
22	.19	17	116	144	82	104	94	43	.32	.88	.70	.60
23	.14	17	107	125	84	120	90	42	.31	.86	.91	.61
24	.09	25	93	106	92	118	85	42	.15	.90	1.4	.60
25	.06	150	83	98	100	107	85	40	.34	.92	1.3	.60
26	.04	298	74	114	122	107	86	30	.33	.84	1.6	.57
27	.03	238	65	110	138	113	197	15	.34	.78	1.6	.30
28	.03	153	60	109	140	113	355	15	.32	2.0	1.4	.33
29	.08	122	59	109	---	115	331	14	.29	1.5	1.2	.42
30	3.2	102	59	103	---	117	257	4.9	.26	1.5	1.1	.43
31	4.6	---	54	101	---	108	---	.45	---	1.2	1.1	---
TOTAL	25.76	1291.82	7139	5312	4544	3441	3808	2187.35	8.51	39.38	38.10	17.88
MEAN	.83	43.1	230	171	162	111	127	70.6	.28	1.27	1.23	.60
MAX	8.0	298	933	330	390	155	355	221	.51	9.4	1.9	1.6
MIN	.03	.52	54	38	82	81	75	.45	.13	.15	.70	.15
AC-FT	51	2560	14160	10540	9010	6830	7550	4340	17	78	76	35

CAL YR 1977 TOTAL 14231.94 MEAN 39.0 MAX 933 MIN .03 AC-FT 28230
WTR YR 1978 TOTAL 27852.80 MEAN 76.3 MAX 933 MIN .03 AC-FT 55250

WALLA WALLA RIVER BASIN

14017000 TOUCHET RIVER AT BOLLES, WA

LOCATION.--Lat 46°16'28", long 118°13'13", on line between secs.7 and 8, T.9 N., R.37 E., Walla Walla County, Hydrologic Unit 17070102, on right bank just downstream from bridge on State Highway 124, 0.4 mi (0.6 km) southeast of Bolles, 2.9 mi (4.7 km) downstream from Coppei Creek, and at mile 40.1 (64.5 km).

DRAINAGE AREA.--361 mi^2 (935 km^2).

PERIOD OF RECORD.--February 1924 to October 1929, April 1951 to current year. Monthly discharge only for February and March 1929, published in WSP 1318. Chemical analyses October 1973 to September 1975, sediment records July 1962 to September 1965 (partial-record station).

REVISED RECORDS.--WSP 1448: 1952-53(M). WSP 1935: Drainage area.

GAGE.--Nonrecording gage. Altitude of gage is 1,150 ft (351 m), from topographic map. Prior to Oct. 5, 1929, water-stage recorder at site 0.5 mi (0.8 km) upstream at different datum. Apr. 1 to May 6, 1951, nonrecording gage, and May 7, 1951, to Sept. 30, 1968, water-stage recorder and wire-weight gage at present site and datum.

REMARKS.--Records good. Diurnal fluctuation and some regulation at low flow caused by operation of flour mill at Waitsburg 3 mi (5 km) upstream. Numerous small diversions for municipal and domestic use and for irrigation.

AVERAGE DISCHARGE.--32 years (water years 1925-29, 1952-78), 233 ft^3/s (6.599 m^3/s) 168,800 acre-ft/yr (208 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,350 ft^3/s (265 m^3/s) Dec. 23, 1964, gage height, 14.06 ft (4.285 m), from rating curve extended above 3,800 ft^3/s (108 m^3/s) on basis of slope-area measurement of peak flow; minimum, 1.4 ft^3/s (0.040 m^3/s) July 30, 1926.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft^3/s (42.5 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 14	0200	*2,040	57.8	*6.25	1.905

Minimum daily discharge 33 ft^3/s (0.93 m^3/s) Aug. 1-8, 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	80	168	80	237	324	408	312	101	51	33	51
2	74	88	405	60	277	295	379	281	96	55	33	47
3	67	85	762	75	421	279	349	261	90	69	33	45
4	63	78	491	140	465	265	334	249	88	74	33	44
5	62	78	355	280	476	266	339	241	84	85	33	44
6	62	76	308	584	641	254	318	221	79	67	33	48
7	60	76	277	486	619	241	327	203	77	124	33	71
8	60	71	236	488	670	254	334	185	73	115	33	86
9	60	69	212	657	620	373	312	177	68	75	34	65
10	58	69	203	585	522	390	294	183	72	65	33	62
11	57	67	219	500	454	388	284	202	69	60	33	60
12	55	67	247	427	388	376	266	191	66	55	35	55
13	55	80	707	384	336	352	249	183	67	52	41	55
14	49	88	1660	369	299	322	237	201	67	48	42	55
15	49	102	1260	400	263	295	235	272	62	46	52	54
16	49	108	908	434	250	277	312	261	59	46	67	55
17	53	102	690	439	232	264	277	243	57	47	53	58
18	53	95	548	424	218	261	289	221	53	44	48	63
19	53	88	434	388	224	262	295	209	52	43	45	59
20	53	83	353	354	219	263	276	197	52	41	50	57
21	53	65	309	322	210	262	259	190	51	40	55	57
22	53	50	284	311	206	267	249	190	49	39	61	57
23	53	60	261	274	203	293	256	174	52	37	60	53
24	53	75	231	244	232	319	230	157	59	35	52	49
25	55	196	206	227	261	281	224	145	70	36	49	51
26	58	395	185	280	318	269	228	135	69	34	50	51
27	58	264	158	245	338	274	345	133	53	35	49	48
28	60	215	154	240	333	272	421	129	47	34	45	49
29	64	187	153	255	---	276	379	120	51	35	42	53
30	78	170	157	240	---	284	348	119	52	34	42	51
31	85	---	125	239	---	280	---	108	---	34	52	---
TOTAL	1845	3329	12666	10431	9952	9878	9053	6093	1985	1655	1354	1653
MEAN	59.5	111	409	336	355	293	302	197	66.2	53.4	43.7	55.1
MAX	85	395	1660	657	670	390	421	312	101	124	67	86
MIN	49	50	125	60	203	241	224	108	47	34	33	44
AC-FT	3660	6600	25120	20690	19740	18010	17960	12090	3940	3280	2690	3280

CAL YR 1977 TOTAL 39636 MEAN 109 MAX 1660 MIN 25 AC-FT 78620
WTR YR 1978 TOTAL 69094 MEAN 189 MAX 1660 MIN 33 AC-FT 137000

14017600 TOUCHET RIVER AT TOUCHET, WA

LOCATION.--Lat 46°02'29", long 118°40'59", in NE¼SE¼ sec.33, T.7 N., R.33 E., Walla Walla County, Hydrologic Unit 17070102, at U.S. Highway 410 bridge, 0.5 mi (0.8 km) upstream from mouth, and 0.6 mi (1.0 km) west of Touchet.

DRAINAGE AREA.--About 750 mi^2 (1,940 km^2).

PERIOD OF RECORD.--Water years 1972, 1974-75, 1977 to current year.

REMARKS.--Water discharge from rating; discharge value is good. Prior to October 1973 published as 14017500.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)
OCT , 1977								
26...	1235	40	--	6.7	12.4	--	27	--
NOV								
28...	1345	216	70	7.5	7.4	--	63	--
DEC								
20...	1215	418	90	7.8	3.2	--	70	--
JAN , 1978								
24...	1140	275	75	7.0	2.5	45	165	11.6
FEB								
14...	1145	237	90	7.3	4.6	45	170	12.0
MAR								
28...	1140	1.7	95	7.6	14.2	40	40	10.0
APR								
25...	1315	192	88	8.0	17.4	40	32	9.0
MAY								
23...	1220	224	100	8.4	16.6	35	30	9.3
JUN								
20...	1245	9.6	160	8.4	25.0	10	11	7.9
JUL								
25...	1245	2.6	200	7.8	29.8	25	55	6.9
AUG								
22...	1215	12	195	8.0	16.5	10	35	9.4
SEP								
26...	1245	26	175	8.1	17.8	15	15	9.3

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977								
26...	.43	.01	.10	.16	.26	.10	.05	.15
NOV								
28...	.35	.01	.16	.39	.55	.15	.05	.15
DEC								
20...	.54	.01	.14	.34	.48	.22	.07	.21
JAN , 1978								
24...	.69	.01	.14	.21	.35	.16	.11	.34
FEB								
14...	.86	.01	.09	.15	.24	.09	.06	.18
MAR								
28...	.17	.01	.10	.29	.39	.13	.03	.09
APR								
25...	.27	.01	.09	.27	.36	.11	.05	.15
MAY								
23...	.06	.00	.08	.26	.34	.08	.04	.12
JUN								
20...	.28	.01	.14	.38	.52	.13	.10	.31
JUL								
25...	.26	.01	.24	3.1	3.3	.26	.10	.31
AUG								
22...	.21	.01	.08	.36	.44	.16	.11	.34
SEP								
26...	.09	.01	.06	.27	.33	.17	.09	.28

14018500 WALLA WALLA RIVER NEAR TOUCHET, WA

LOCATION.--Lat 46°01'40", long 118°43'43", in NW¼SE¼ sec.6, T.6 N., R.33 E., Walla Walla County, Hydrologic Unit 17070102, on left bank 0.8 mi (1.3 km) upstream from Gardena Creek, 2.8 mi (4.5 km) southwest of Touchet, 3.4 mi (5.5 km) downstream from Touchet River, and at mile 18.2 (29.3 km).

DRAINAGE AREA.--1,657 mi^2 (4,292 km^2).

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 405 ft (123 m), from topographic map. Prior to Nov. 27, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good. Many diversions above station for irrigation.

AVERAGE DISCHARGE.--27 years, 595 ft^3/s (16.85 m^3/s) 431,100 acre-ft/yr (532 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft^3/s (946 m^3/s) Dec. 22, 1964, gage height, 18.90 ft (5.761 m), from rating curve extended above 15,000 ft^3/s (425 m^3/s) on basis of slope-area measurement of peak flow; no flow July 30 to Aug. 8, Aug. 12, 13, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft^3/s (85.0 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 3	0300	4,470	127	9.15	2.789	Dec. 14	1300	*5,280	150	*9.52	2.902

Minimum discharge, 2.0 ft^3/s (0.057 m^3/s) Aug. 11, gage height, 1.88 ft (0.573 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	173	78	543	400	850	1140	1180	1310	94	32	12	74
2	166	70	840	325	873	1100	1260	1100	84	46	9.4	71
3	154	72	3760	370	1070	1030	1100	928	73	71	7.7	65
4	139	83	2050	530	1290	980	952	821	70	78	6.9	60
5	125	77	1350	1000	1380	962	1000	778	69	93	6.0	56
6	111	71	1010	1700	1800	914	976	677	68	87	2.5	110
7	106	77	891	1630	2030	890	995	594	55	70	3.8	103
8	100	71	731	1380	2230	914	1020	536	53	457	4.8	148
9	88	73	639	1888	2050	1140	950	490	42	141	4.2	160
10	77	73	579	1890	1870	1340	893	485	42	96	3.8	134
11	68	71	589	1670	1610	1320	829	501	44	82	3.0	126
12	60	69	646	1430	1390	1300	734	518	43	77	2.4	123
13	55	74	1060	1260	1210	1210	662	461	46	64	3.8	111
14	47	92	4540	1220	1090	1130	620	490	50	41	15	105
15	39	103	4660	1350	1020	1030	618	572	50	32	16	104
16	36	156	3240	1510	950	974	748	716	43	32	51	98
17	36	165	2280	1530	875	920	921	638	40	37	55	99
18	36	158	1890	1590	835	896	762	560	39	38	36	114
19	38	150	1460	1460	855	890	765	528	37	29	28	117
20	36	125	1190	1290	870	890	746	488	31	27	25	106
21	36	100	1020	1150	865	880	707	426	28	21	36	102
22	38	75	925	1110	860	880	656	403	27	17	110	107
23	38	90	878	998	855	926	677	368	29	19	142	103
24	40	250	837	896	890	1050	597	301	32	20	110	97
25	43	446	749	845	1030	908	559	262	44	18	90	94
26	45	1430	694	908	1140	860	567	222	5[illegible]	15	80	97
27	51	1190	634	902	1260	883	916	185	55	13	77	91
28	49	902	586	859	1230	883	2320	163	35	12	77	81
29	54	715	590	890	---	869	2000	139	31	13	62	78
30	56	600	595	862	---	902	1620	121	27	13	55	77
31	65	---	500	846	---	871	---	107	---	13	60	---
TOTAL	2205	7706	41956	35681	34278	30922	28350	15888	1440	1804	1195.3	3011
MEAN	71.1	257	1353	1151	1224	997	945	513	48.0	58.2	38.6	100
MAX	173	1430	4660	1890	2230	1340	2320	1310	94	457	142	160
MIN	36	69	500	325	835	860	559	107	27	12	2.4	56
AC-FT	4370	15280	83220	70770	67990	61330	56230	31510	2860	3580	2370	5970

CAL YR 1977 TOTAL 96968.2 MEAN 266 MAX 4660 MIN 1.8 AC-FT 192300
WTR YR 1978 TOTAL 204436.3 MEAN 560 MAX 4660 MIN 2.4 AC-FT 405500

14018600 WALLA WALLA RIVER BELOW WARM SPRINGS CREEK NEAR TOUCHET, WA

LOCATION.--Lat 46°02'16", long 118°45'55", in SE¼SE¼ sec.35, T.7 N., R.32 E., Walla Walla County, Hydrologic Unit 17070102, at county road bridge, 0.9 mi (1.4 km) downstream from Warm Springs Canyon, 2.5 mi (4.0 km) downstream from gaging station, 3.7 mi (6.0 km) west of Touchet, and at mile 15.7 (25.3 km).

DRAINAGE AREA.--About 1,690 mi^2 (4,380 km^2).

PERIOD OF RECORD.--Water years 1959 to 1971, 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1959 to June 1970.
SEDIMENT RECORDS: October 1962 to June 1970.

REMARKS.--Water discharge obtained by routing flow from nearby station; discharge value is poor. Records collected prior to October 1973 published as 14018500 "near Touchet".

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)
OCT , 1977								
26...	1300	44	--	7.0	13.0	--	--	--
NOV								
28...	1415	902	175	7.3	7.6	--	55	--
DEC								
20...	1240	1200	190	7.6	4.0	--	45	--
JAN , 1978								
24...	1300	902	173	6.9	3.6	30	120	10.9
FEB								
14...	1245	1090	190	7.6	5.0	35	110	11.7
MAR								
28...	1200	908	90	7.7	12.0	25	35	10.4
APR								
25...	1330	562	165	7.6	17.0	15	35	9.4
MAY								
23...	1345	356	160	7.9	16.0	10	27	9.4
JUN								
20...	1300	32	350	8.4	24.0	10	17	7.3
JUL								
25...	1310	E10	410	7.0	2.9	10	25	6.0
AUG								
22...	1230	49	405	7.0	18.0	5	15	9.1
SEP								
26...	1315	96	390	8.1	18.0	10	12	9.1

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT , 1977								
26...	.72	.01	.12	.27	.39	.14	.06	.18
NOV								
28...	.79	.02	.26	.66	.92	.27	.07	.21
DEC								
20...	.68	.02	.14	.42	.56	.39	.09	.28
JAN , 1978								
24...	.95	.01	.15	.25	.40	.35	.28	.86
FEB								
14...	.94	.01	.10	.27	.37	.20	.10	.31
MAR								
28...	.53	.02	.09	.41	.50	.20	.08	.25
APR								
25...	.74	.02	.11	.26	.37	.14	.10	.31
MAY								
23...	.43	.01	.07	.23	.30	.11	.09	.28
JUN								
20...	.36	.01	.09	.58	.67	.13	.06	.18
JUL								
25...	.94	.02	.13	.59	.72	.24	.14	.43
AUG								
22...	.65	.02	.08	--	--	.42	.11	.34
SEP								
26...	.84	.02	.20	.44	.64	.44	.25	.77

14019200 COLUMBIA RIVER AT MCNARY DAM, NEAR UMATILLA, OR

LOCATION.--Lat 45°56'05", long 119°17'45", in NE¼ sec.10, T.5 N., R.28 E., Umatilla County, Hydrologic Unit 17070101, in powerhouse forebay between generator units 2 and 3 at McNary Dam, 2.5 mi (4.0 km) northeast of Umatilla, 3.0 mi (4.8 km) upstream from Umatilla River, and at mile 292.0 (469.8 km).

DRAINAGE AREA.--214,000 mi² (554,300 km²), approximately.

PERIOD OF RECORD.--October 1950 to current year. Gage-height records collected at site at Umatilla since 1876 are contained in reports of U.S. Weather Bureau. Prior to October 1966, published as "below McNary Dam."

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1966, at site 1.2 mi (1.9 km) downstream (tailwater) at 240.04 ft (73.164 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records computed from power output and flow over spillway at McNary Dam. Considerable regulation by many reservoirs upstream. Diurnal fluctuation caused by powerplant and gates at McNary Dam since beginning of operation in April 1953. Many diversions for irrigation above station.

COOPERATION.--Daily discharge records furnished by Corps of Engineers. Two discharge measurements made and records reviewed by Geological Survey.

AVERAGE DISCHARGE.--28 years, 184,800 ft³/s (5,234 m³/s), 133,900,000 acre-ft/yr (165 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 818,000 ft³/s (23,200 m³/s) June 2, 1956, elevation, 277.01 ft (84.433 m), at site 1.2 mi (1.9 km) downstream; maximum daily discharge, 798,000 ft³/s (22,600 m³/s) June 2, 1956; minimum daily discharge, 39,500 ft³/s (1,120 m³/s) July 10, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 5, 1894, reached an elevation of 284.2 ft (86.62 m), and that of May 31, 1948, reached an elevation of about 280 ft (85.3 m), both at site 1.2 mi (1.9 km) downstream from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 317,000 ft³/s (8,980 m³/s) June 8; maximum forebay elevation, 339.9 ft (103.60 m) June 16, 17; minimum daily discharge, 60,900 ft³/s (1,720 m³/s) Oct. 16; minimum forebay elevation, 337.2 ft (102.78 m) Sept. 7, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87000	99600	156000	125000	189000	181000	235000	233000	223000	230000	158000	106000
2	86300	104000	131000	118000	184000	180000	265000	275000	218000	187000	151000	103000
3	95700	120000	142000	152000	173000	193000	251000	253000	220000	174000	124000	98900
4	115000	133000	138000	156000	130000	149000	249000	278000	214000	172000	116000	82200
5	106000	84300	151000	140000	147000	141000	232000	275000	199000	220000	109000	118000
6	104000	74900	149000	159000	142000	162000	244000	277000	245000	190000	108000	166000
7	90300	108000	155000	149000	165000	171000	231000	242000	290000	230000	120000	194000
8	81300	121000	166000	128000	158000	155000	222000	228000	317000	190000	138000	187000
9	81100	113000	155000	134000	169000	158000	221000	253000	304000	209000	146000	173000
10	103000	102000	126000	157000	169000	162000	233000	251000	310000	212000	143000	152000
11	87100	89700	196000	184000	165000	155000	197000	266000	272000	215000	130000	189000
12	97800	95900	162000	186000	144000	123000	207000	276000	291000	222000	129000	140000
13	104000	72900	137000	165000	158000	150000	220000	255000	262000	217000	68800	163000
14	80600	104000	160000	148000	178000	164000	255000	241000	269000	204000	154000	176000
15	84000	105000	179000	144000	179000	163000	256000	259000	265000	190000	132000	170000
16	60900	131000	190000	168000	186000	153000	233000	278000	252000	211000	138000	144000
17	101000	144000	214000	165000	177000	170000	226000	270000	239000	189000	130000	137000
18	117000	143000	164000	182000	150000	145000	226000	288000	244000	189000	134000	158000
19	97900	134000	157000	183000	133000	127000	222000	270000	232000	159000	113000	163000
20	99900	130000	161000	130000	147000	140000	220000	224000	217000	192000	76200	149000
21	106000	162000	156000	173000	178000	164000	220000	230000	237000	180000	128000	152000
22	75800	165000	149000	141000	159000	188000	202000	267000	213000	187000	132000	136000
23	70000	151000	150000	170000	173000	204000	219000	283000	226000	153000	126000	126000
24	81200	107000	123000	173000	172000	195000	191000	294000	179000	183000	115000	97300
25	81500	86300	81900	169000	165000	200000	224000	307000	209000	179000	122000	126000
26	97000	92900	102000	167000	142000	178000	213000	275000	209000	166000	105000	135000
27	117000	104000	139000	196000	160000	198000	223000	264000	215000	118000	106000	133000
28	117000	123000	161000	182000	176000	210000	241000	240000	237000	142000	125000	147000
29	84800	130000	149000	130000	---	220000	268000	236000	212000	136000	138000	139000
30	76900	148000	142000	172000	---	221000	262000	252000	211000	133000	130000	126000
31	101000	---	136000	176000	---	231000	---	228000	---	155000	135000	---
TOTAL	2888100	3478500	4587900	4922000	4568000	5343000	6998000	8068000	7231000	5734000	3880000	4286400
MEAN	93160	116000	148000	158800	163100	172400	230300	260300	241000	185000	125200	142900
MAX	117000	165000	214000	196000	189000	231000	268000	307000	317000	230000	158000	194000
MIN	60900	72900	81900	118000	130000	123000	191000	224000	179000	118000	68800	82200
AC-FT	5729000	6900000	9100000	9763000	9061000	10600000	13700000	16000000	14340000	11370000	7696000	8502000

CAL YR 1977 TOTAL 42427500 MEAN 116200 MAX 214000 MIN 39500 AC-FT 84150000
WTR YR 1978 TOTAL 61894900 MEAN 169600 MAX 317000 MIN 60900 AC-FT 122800000

14019250 COLUMBIA RIVER AT UMATILLA, OR

LOCATION.--Lat 45°55'53", long 119°19'39", in SW¼NW¼ sec.9, T.5 N., R.28 E., Umatilla County, Hydrologic Unit 17070101, near span on upstream side of bridge at Umatilla, and at mile 290.5 (467.4 km).

DRAINAGE AREA.--214,000 mi^2 (554,300 km^2), approximately.

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1974 to current year.

INSTRUMENTATION.--Temperature recorder since October 1974.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 22.5°C Aug. 16-17, 1977; minimum, 1.0°C Feb. 7, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 22.0°C Aug. 7,8; minimum, 2.0°C Jan. 4-6.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
OCT , 1977											
05...	0900	106000	203	7.6	16.3	9.5	3	--	--	7.3	101
NOV											
11...	1000	89700	219	7.9	11.2	10.5	13	K9	K240	7.8	105
DEC											
07...	0900	155000	214	7.8	7.9	11.9	0	850	210	12	128
JAN , 1978											
13...	0830	164000	178	7.6	3.7	12.6	10	390	130	11	99
FEB											
01...	0900	189000	193	7.8	3.9	12.8	8	K8	68	11	110
23...	0900	173000	189	8.0	3.5	13.5	14	K3	25	13	107
MAR											
15...	0800	163000	198	7.9	5.4	12.3	9	96	31	13	114
APR											
13...	0800	220000	162	7.8	8.7	11.7	2	K2	K8	10	97
MAY											
10...	0900	251000	151	7.6	12.0	12.7	10	K2	35	12	88
JUN											
15...	1600	265000	97	8.4	14.6	11.7	5	K3	<0	8.3	60
JUL											
07...	0900	230000	112	7.7	16.9	8.6	2	--	--	8.3	65
AUG											
17...	0800	130000	137	8.4	19.3	9.3	1	K3	K9	5.6	73
SEP											
27...	0930	133000	158	7.9	17.6	9.7	12	K15	<0	7.0	96

K Results based upon colony counts outside the ideal range.

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)
OCT , 1977											
05...	.14	28900	2	.16	.00	.12	.12	.28	1.2	.03	2
NOV											
11...	.14	25400	2	.22	.01	.18	.19	.41	1.8	.04	1
DEC											
07...	.17	53600	17	.36	--	--	.20	.56	2.5	.06	2
JAN , 1978											
13...	.13	43800	12	.22	.06	.23	.29	.51	2.3	.06	2
FEB											
01...	.15	56100	13	.42	.01	.13	.14	.56	2.5	.05	2
23...	.15	50000	20	.48	.00	.15	.15	.55	2.4	.07	2
MAR											
15...	.16	50200	11	.53	.03	.17	.20	.73	3.2	.11	2
APR											
13...	.13	57600	13	.28	.03	.26	.29	.57	2.5	.05	3
MAY											
10...	.12	59600	22	.09	.00	.51	.51	.60	2.7	.07	1
JUN											
15...	.08	42900	21	.02	.01	.30	.31	.33	1.5	.01	2
JUL											
07...	.09	40400	44	.04	.00	.23	.23	.27	1.2	.01	1
AUG											
17...	.10	25600	6	.01	.05	.31	.36	.37	1.6	.02	--
SEP											
27...	.13	34500	10	.12	.07	.43	.50	.62	2.7	.04	1

WATER QUALITY DATA

DATE	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CHLOROPHYLL A PHYTOPLANKTON, UNCORR. (UG/L)	CHLOROPHYLL B PHYTOPLANKTON, UNCORR. (UG/L)
OCT , 1977											
05...	<10	5	<10	160	<100	.0	0	20	1.5	1.04	.645
NOV											
11...	8	4	11	110	44	.6	0	50	1.8	3.38	.793
DEC											
07...	1	0	11	690	24	.0	0	90	1.9	1.40	.000
JAN , 1978											
13...	3	20	10	320	16	.0	0	40	--	.212	.094
FEB											
01...	--	0	34	300	14	.1	0	70	--	.732	.000
23...	3	10	14	630	21	.0	0	60	1.5	--	--
MAR											
15...	1	10	19	380	3	.0	0	50	2.2	3.61	.051
APR											
13...	1	0	20	450	12	.0	0	60	2.2	3.40	1.36
MAY											
10...	--	0	50	770	--	.1	0	60	2.9	4.67	.000
JUN											
15...	1	15	13	430	6	.1	0	30	3.3	.000	.000
JUL											
07...	1	0	14	350	11	.0	0	20	2.3	12.2	.659
AUG											
17...	3	0	15	280	24	--	--	30	2.5	--	--
SEP											
27...	2	0	20	180	13	.0	0	10	1.7	--	--

DATE	TIME	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	OIL AND GREASE (MG/L)
OCT , 1977												
05...	0900	18	5.4	7.9	1.4	82	--	67	3.3	17	4.3	0
NOV												
11...	1000	18	5.7	8.0	1.7	86	0	71	1.7	16	4.7	0
FEB , 1978												
01...	0900	20	6.4	7.7	1.5	87	0	71	2.2	17	4.5	--
APR												
13...	0800	19	5.2	5.6	1.3	77	0	63	2.0	13	3.1	0
JUL												
07...	0900	12	3.4	4.7	.9	49	0	40	1.6	9.2	2.5	0

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	OCTOBER MAX	OCTOBER MIN	OCTOBER MEAN	NOVEMBER MAX	NOVEMBER MIN	NOVEMBER MEAN	DECEMBER MAX	DECEMBER MIN	DECEMBER MEAN	JANUARY MAX	JANUARY MIN	JANUARY MEAN
1	---	---	---				---	---	---	3.5	3.5	3.5
2	---	---	---				---	---	---	3.5	3.0	3.5
3	16.0	16.0	16.0				---	---	---	3.5	3.0	3.0
4	16.0	16.0	16.0				---	---	---	3.0	2.0	2.5
5	16.0	16.0	16.0				---	---	---	2.0	2.0	2.0
6	16.0	15.5	16.0				---	---	---	2.5	2.0	2.0
7	15.5	15.5	15.5				---	---	---	3.0	2.5	2.5
8	15.5	15.5	15.5				---	---	---	3.0	3.0	3.0
9	15.5	15.0	15.5				7.0	6.5	7.0	3.5	3.0	3.5
10	15.0	15.0	15.0				7.0	6.5	6.5	3.5	3.0	3.0
11	15.0	15.0	15.0				6.5	6.5	6.5	3.0	3.0	3.0
12	15.0	14.5	14.5				6.5	6.5	6.5	3.5	3.0	3.5
13	15.0	15.0	15.0				6.5	6.0	6.0	3.5	3.5	3.5
14	15.0	15.0	15.0				6.5	6.0	6.5	3.5	3.5	3.5
15	15.0	15.0	15.0				7.0	6.5	7.0	4.0	3.5	3.5
16	15.0	15.0	15.0				7.5	7.0	7.0	4.0	3.5	3.5
17	15.0	15.0	15.0				7.0	6.5	7.0	4.0	3.5	4.0
18	15.5	15.0	15.0				6.5	6.0	6.5	4.0	4.0	4.0
19	15.5	15.0	15.0				6.0	6.0	6.0	4.5	4.0	4.0
20	15.0	15.0	15.0				6.0	5.5	5.5	4.5	4.0	4.0
21	15.0	15.0	15.0				5.5	5.0	5.5	4.5	4.0	4.0
22	15.0	15.0	15.0				5.0	5.0	5.0	4.5	4.0	4.0
23	15.0	14.5	15.0				5.0	5.0	5.0	4.5	4.5	4.5
24	15.0	14.5	14.5				5.0	5.0	5.0	4.5	4.0	4.5
25	14.5	14.5	14.5				5.0	5.0	5.0	4.5	4.0	4.5
26	14.5	14.5	14.5				5.0	4.5	5.0	4.5	4.0	4.0
27	14.5	14.0	14.5				4.5	4.5	4.5	4.0	4.0	4.0
28	14.0	14.0	14.0				4.5	4.0	4.5	4.0	4.0	4.0
29	14.0	14.0	14.0				4.0	3.0	4.0	4.0	4.0	4.0
30	---	---	---				3.5	3.5	3.5	4.0	4.0	4.0
31	---	---	---				3.5	3.5	3.5	4.0	4.0	4.0
MONTH	16.0	14.0	15.0				7.5	3.0	5.5	4.5	2.0	3.5

14019250 COLUMBIA RIVER AT UMATILLA, OR--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	4.0	3.5	4.0	4.0	4.0	4.0	8.5	8.0	8.0	10.5	10.5	10.5
2	3.5	3.5	3.5	4.0	4.0	4.0	8.0	8.0	8.0	11.0	10.5	11.0
3	3.5	3.5	3.5	4.0	4.0	4.0	8.0	8.0	8.0	11.0	11.0	11.0
4	3.5	3.0	3.0	4.0	4.0	4.0	8.0	8.0	8.0	11.0	11.0	11.0
5	3.5	3.0	3.0	4.0	3.5	3.5	8.0	8.0	8.0	11.0	11.0	11.0
6	3.5	3.5	3.5	3.5	3.5	3.5	8.0	8.0	8.0	11.0	11.0	11.0
7	3.5	3.5	3.5	3.5	3.5	3.5	9.5	8.0	8.0	11.0	11.0	11.0
8	3.5	3.5	3.5	3.5	3.5	3.5	8.0	7.5	8.0	11.5	11.0	11.0
9	4.0	3.5	4.0	4.0	3.5	4.0	8.0	7.5	7.5	11.5	11.0	11.5
10	4.0	4.0	4.0	4.5	4.0	4.0	8.0	7.5	8.0	12.0	11.5	12.0
11	4.0	4.0	4.0	4.5	4.0	4.5	8.5	8.0	8.0	12.0	11.5	11.5
12	4.0	4.0	4.0	5.0	4.5	4.5	8.5	8.5	8.5	11.5	11.5	11.5
13	4.0	3.5	3.5	5.0	5.0	5.0	8.5	8.5	8.5	11.5	11.5	11.5
14	3.5	3.5	3.5	5.0	5.0	5.0	8.5	8.5	8.5	11.5	11.5	11.5
15	3.5	3.5	3.5	5.5	5.0	5.5	8.5	8.5	8.5	11.5	11.5	11.5
16	3.5	3.5	3.5	5.5	5.5	5.5	8.5	8.0	8.5	11.5	11.5	11.5
17	3.5	3.5	3.5	5.5	5.5	5.5	8.5	8.0	8.0	11.5	11.5	11.5
18	3.5	3.5	3.5	5.5	5.5	5.5	8.5	8.0	8.5	12.0	11.5	11.5
19	3.5	3.5	3.5	6.0	5.5	6.0	8.5	8.0	8.5	12.5	12.0	12.0
20	3.5	3.5	3.5	6.5	6.0	6.0	9.0	8.5	9.0	12.5	12.5	12.5
21	3.5	3.5	3.5	6.5	6.0	6.5	9.0	8.5	9.0	13.0	12.5	13.0
22	3.5	3.5	3.5	7.0	6.5	6.5	9.0	8.5	8.5	13.0	13.0	13.0
23	4.0	3.5	4.0	7.0	7.0	7.0	8.5	8.5	8.5	13.0	12.5	13.0
24	4.0	3.5	4.0	7.0	7.0	7.0	9.0	8.5	9.0	13.0	12.5	12.5
25	4.0	3.5	3.5	7.0	7.0	7.0	9.0	8.5	9.0	13.0	12.5	13.0
26	4.0	3.5	3.5	7.0	7.0	7.0	9.5	9.0	9.5	13.0	12.5	12.5
27	4.0	3.5	3.5	7.5	7.0	7.0	9.5	9.5	9.5	12.5	12.5	12.5
28	4.0	3.5	3.5	7.5	7.0	7.5	9.5	9.5	9.5	12.5	12.5	12.5
29	---	---	---	8.0	7.5	8.0	10.0	9.5	10.0	13.0	12.5	12.5
30	---	---	---	8.0	8.0	8.0	10.5	10.0	10.0	13.0	12.5	13.0
31	---	---	---	8.0	8.0	8.0	---	---	---	13.0	13.0	13.0
MONTH	4.0	3.0	3.5	8.0	3.5	5.5	10.5	7.5	8.5	13.0	10.5	12.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.5	13.0	13.0	17.5	17.0	17.0	20.5	20.0	20.5	20.0	19.5	20.0
2	13.5	13.0	13.0	17.0	17.0	17.0	20.5	20.0	20.5	20.0	20.0	20.0
3	13.5	13.0	13.5	17.0	17.0	17.0	---	---	---	20.0	19.5	19.5
4	14.0	13.5	13.5	17.0	17.0	17.0	20.5	20.0	20.5	19.5	19.5	19.5
5	14.0	13.5	14.0	17.0	17.0	17.0	20.5	20.5	20.5	19.5	19.5	19.5
6	14.5	14.0	14.0	17.0	17.0	17.0	21.0	20.5	21.0	19.5	19.5	19.5
7	15.0	14.5	14.5	17.5	17.0	17.0	22.0	21.0	21.5	19.5	19.5	19.5
8	15.0	15.0	15.0	17.5	17.5	17.5	22.0	21.0	21.5	19.5	19.0	19.0
9	15.0	15.0	15.0	18.0	17.5	17.5	21.5	21.5	21.5	19.0	18.5	19.0
10	15.0	14.5	15.0	18.0	18.0	18.0	21.5	21.5	21.5	18.5	18.5	18.5
11	15.0	14.5	14.5	18.0	18.0	18.0	21.5	20.0	21.0	18.5	18.0	18.0
12	15.0	15.0	15.0	18.0	18.0	18.0	21.0	21.0	21.0	18.0	18.0	18.0
13	15.0	15.0	15.0	18.0	18.0	18.0	21.0	21.0	21.0	18.0	18.0	18.0
14	15.0	14.5	14.5	18.5	18.0	18.0	20.5	20.5	20.5	18.0	18.0	18.0
15	14.5	14.5	14.5	18.0	18.0	18.0	20.5	20.5	20.0	18.0	18.0	18.0
16	14.5	14.5	14.5	18.0	18.0	18.0	19.5	19.5	19.5	18.0	18.0	18.0
17	14.5	14.5	14.5	18.0	17.5	17.5	19.5	19.0	19.5	18.0	18.0	18.0
18	14.5	14.5	14.5	17.5	17.5	17.5	19.5	19.0	19.0	18.0	17.5	17.5
19	15.0	14.5	15.0	18.0	17.5	18.0	19.0	19.0	19.0	17.5	17.5	17.5
20	15.0	15.0	15.0	18.5	18.0	18.5	19.0	19.0	19.0	17.5	17.5	17.5
21	15.0	15.0	15.0	18.5	18.5	18.5	19.0	19.0	19.0	17.0	17.0	17.0
22	15.0	15.0	15.0	19.0	18.5	19.0	19.0	19.0	19.0	17.5	17.0	17.0
23	15.5	15.0	15.0	19.0	19.0	19.0	19.0	18.5	19.0	17.5	17.0	17.0
24	15.5	15.0	15.5	19.5	19.0	19.5	19.0	19.0	19.0	17.5	17.5	17.5
25	15.5	15.5	15.5	19.5	19.5	19.5	19.0	19.0	19.0	17.5	17.5	17.5
26	15.5	15.5	15.5	19.5	19.5	19.5	19.5	19.0	19.0	17.5	17.5	17.5
27	16.0	15.5	15.5	20.0	19.5	20.0	19.5	19.0	19.5	17.5	17.5	17.5
28	16.5	16.0	16.0	20.0	19.5	19.5	19.5	19.5	19.5	18.0	17.5	18.0
29	17.0	16.0	16.5	20.0	19.5	20.0	20.0	19.5	19.5	18.0	18.0	18.0
30	17.0	16.5	17.0	20.0	20.0	20.0	19.5	19.5	19.5	18.0	17.5	18.0
31	---	---	---	20.5	20.0	20.0	20.0	19.5	19.5	---	---	---
MONTH	17.0	13.0	15.0	20.5	17.0	18.5	22.0	18.5	20.0	20.0	17.0	18.5
YEAR	22.0	2.0	11.5									

14105700 COLUMBIA RIVER AT THE DALLES, OR

LOCATION.--Lat 45°36'27", long 121°10'20", in SW¼SW¼ sec.34, T.2 N., R.13 E., Wasco County, Hydrologic Unit 17070105, Corps of Engineers land, on left bank 0.3 mi (0.5 km) downstream from Mill Creek, 2.6 mi (4.2 km) downstream from The Dalles Dam, and at mile 188.9 (303.9 km).

DRAINAGE AREA.--237,000 mi^2 (614,000 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1857 to September 1877 (annual maximum only, at Lower Cascades Landing, published in WSP 1318), June 1878 to current year. Published as "near The Dalles" 1936-56.

REVISED RECORDS.--WSP 534: 1920(m). WSP 1094: 1894. WSP 1248: 1866, 1888, 1899, 1909. WSP 1518: 1876(M).

GAGE.--Acoustic velocity meter (AVM) with water-stage and velocity-index recorder. Datum of gage is National Geodetic Vertical Datum of 1929. See WSP 1738 for history of changes prior to Mar. 16, 1957. Mar. 16, 1957, to Sept. 30, 1968, water-stage recorder at site 0.4 mi (0.6 km) upstream at same datum.

REMARKS.--Water-discharge records excellent. Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant and gates at The Dalles Dam. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--100 years, 193,900 ft^3/s (5,491 m^3/s), 140,500,000 acre-ft/yr (173 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (1858-1978), 1,240,000 ft^3/s (35,100 m^3/s) June 6, 1894, gage height, 106.5 ft (32.46 m); minimum (1878-1978), 12,100 ft^3/s (343 m^3/s) Apr. 16, 1968 (recorded by AVM due to closure of John Day dam).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 313,000 ft^3/s (8,860 m^3/s) June 10; minimum daily, 58,800 ft^3/s (1,670 m^3/s) Aug. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91900	106000	152000	131000	172000	189000	217000	252000	263000	192000	172000	126000
2	79200	111000	154000	114000	173000	194000	263000	244000	231000	184000	161000	93400
3	123000	103000	161000	158000	173000	210000	275000	266000	165000	180000	162000	87700
4	115000	123000	142000	167000	135000	128000	255000	261000	211000	174000	140000	76100
5	188000	109000	164000	157000	153000	134000	242000	290000	223000	222000	89900	116000
6	131000	74500	147000	154000	147000	171000	237000	266000	227000	206000	78700	164000
7	120000	99800	151000	156000	171000	150000	234000	238000	229000	206000	129000	204000
8	76500	123000	173000	127000	172000	150000	211000	277000	273000	170000	140000	189000
9	76600	126000	164000	135000	186000	161000	221000	256000	277000	195000	132000	162000
10	102900	121000	120000	162000	171000	166000	260000	240000	313000	227000	134000	108000
11	91300	69900	86300	193000	183000	162000	243000	244000	275000	222000	132000	150000
12	97000	79200	172000	193000	150000	123000	233000	274000	299000	241000	91500	134000
13	101000	76200	162900	182000	163000	159000	257000	237000	253000	223000	58800	153000
14	91500	91700	180000	160000	174000	182000	262000	217000	264000	219000	124000	192000
15	74700	91600	217000	137000	184000	183000	251000	275000	259000	174000	134000	160000
16	64600	131000	199000	180000	188000	151000	195000	265000	256000	141000	137000	135000
17	97900	139000	221000	163000	200000	169000	227000	282000	240000	192000	127000	97600
18	111000	163000	199000	195000	143000	156000	213000	293000	267000	195000	130000	152000
19	93500	112000	176000	194000	127000	125000	212000	284000	232000	167000	108000	183000
20	182000	124000	186000	159000	155000	173000	253000	286000	238000	164000	76700	163000
21	185000	179000	149000	153000	187000	162000	228000	223000	225000	174000	131000	148000
22	68700	171000	154000	142000	170000	170000	172000	258000	215000	162000	122000	150000
23	61100	144000	148000	194000	163000	196000	183000	291000	210000	140000	114000	111000
24	85100	117000	125000	180000	180000	215000	227000	298000	181000	185000	129000	99900
25	81100	124000	96200	169000	168000	202000	214000	286000	202000	160000	122000	144000
26	93600	98800	185000	166000	146000	176000	222000	384000	238000	160000	95400	135000
27	120000	194000	129000	204000	174000	208000	227000	266000	204000	163000	98400	125000
28	113000	116000	163000	165000	180000	208000	243000	214000	240000	139000	128000	130000
29	94500	127000	161000	147000	---	229000	232000	224000	227000	98200	141000	116000
30	70000	133000	141000	183000	---	227000	269000	261000	228000	90300	134000	123000
31	106000	---	144000	187000	---	255000	---	239000	---	152000	174000	---
TOTAL	2945000	3507700	4843500	5143000	4694000	5500000	6978000	8031000	7107000	5527500	3836400	4127700
MEAN	95030	116900	156200	165900	167600	177400	232600	259100	236900	178300	123800	137600
MAX	131000	179000	221000	204000	200000	255000	275000	384000	313000	241000	174000	204000
MIN	61100	74500	80300	114000	127000	123000	172000	206000	165000	90300	58800	76100
AC-FT	5843000	6958000	9607000	10200000	9311000	10910000	13840000	15930000	14100000	10960000	7613000	8187000

CAL YR 1977 TOTAL 42764000 MEAN 117200 MAX 221000 MIN 53900 AC-FT 84870000
WTR YR 1978 TOTAL 62243000 MEAN 170500 MAX 313000 MIN 58800 AC-FT 123500000

14105700 COLUMBIA RIVER AT THE DALLES, OR--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at The Dalles Dam, 3.2 mi (5.1 km) upstream from discharge station.

PERIOD OF RECORD.--Water years 1951 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1950 to current year.
WATER TEMPERATURES: December 1950 to September 1969, October 1973 to September 1976.

REMARKS.--No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 324 micromhos/cm Dec. 7, 1955; minimum daily, 95 micromhos/cm June 8, 1972.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 212 micromhos Feb. 11; minimum daily recorded, 98 micromhos June 23, 24.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN DEMAND, CHEM-ICAL (LOW LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
OCT , 1977											
04...	1400	115000	155	8.1	17.1	9.3	6	--	--	6.3	86
NOV											
09...	1230	126000	190	7.9	12.2	10.3	15	K5	180	7.2	98
DEC											
05...	1300	164000	194	7.4	8.0	11.8	9	43	K30	9.4	116
JAN , 1978											
11...	1200	193000	178	7.7	3.2	12.7	25	55	81	12	108
30...	1200	183000	213	7.8	4.3	12.2	11	86	80	13	123
FEB											
21...	1200	187000	197	8.0	4.1	12.7	21	K1	K18	15	113
MAR											
14...	0815	182000	185	7.6	5.0	12.4	9	80	K7	12	103
APR											
12...	0900	233000	175	8.0	8.9	12.0	14	K3	<1	14	109
MAY											
08...	1200	277000	157	8.0	11.5	9.9	13	K2	K3	11	94
JUN											
13...	1500	253000	118	8.3	16.3	12.1	10	K11	K10	9.0	69
JUL											
05...	1400	222000	116	8.2	17.1	9.3	10	--	--	7.9	66
AUG											
16...	0900	140000	134	8.4	21.1	8.1	4	K5	K8	7.0	75
SEP											
28...	0830	134000	150	7.8	17.3	9.3	18	K15	K22	7.9	93

K Results based upon colony counts outside the ideal range.

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)
OCT , 1977											
04...	.12	26700	0	.07	.02	.09	.11	.18	.80	.02	2
NOV											
09...	.13	33300	2	.17	.01	.18	.19	.36	1.6	.06	2
DEC											
05...	.16	51400	14	.31	.04	.13	.17	.48	2.1	.06	1
JAN , 1978											
11...	.15	56300	37	1.4	.07	.29	.36	1.8	7.8	.09	2
30...	.17	60800	15	.37	.02	.03	.05	.42	1.9	.06	2
FEB											
21...	.15	57100	24	.43	.00	.22	.22	.65	2.9	.07	2
MAR											
14...	.14	50600	8	.36	.01	.10	.11	.47	2.1	.11	1
APR											
12...	.15	66600	23	.33	.04	.27	.31	.64	2.8	.06	5
MAY											
08...	.13	70300	20	.10	.00	.93	.93	1.0	4.6	.07	1
JUN											
13...	.09	47100	11	.04	.00	.47	.47	.51	2.3	.03	2
JUL											
05...	.09	39600	78	.01	.00	.51	.51	.52	2.3	.07	0
AUG											
16...	.10	28400	2	.03	.05	.30	.35	.38	1.7	.02	2
SEP											
28...	.13	33600	10	.10	.04	.25	.29	.39	1.7	.04	1

14105700 COLUMBIA RIVER AT THE DALLES, OR--Continued

WATER QUALITY DATA

DATE	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CHLOROPHYLL A PHYTOPLANKTON, UNCORR. (UG/L)	CHLOROPHYLL B PHYTOPLANKTON, UNCORR. (UG/L)
OCT , 1977											
04...	<10	5	10	160	100	.0	0	--	--	2.00	.000
NOV											
09...	22	0	13	200	39	.0	0	70	1.5	7.14	.206
DEC											
05...	3	0	12	520	20	.0	0	60	1.6	2.39	.664
JAN , 1978											
11...	1	20	22	1400	9	.0	0	40	--	.808	.723
30...	--	0	24	490	9	.0	0	40	2.2	1.48	.000
FEB											
21...	2	10	11	520	14	.0	0	40	2.2	--	--
MAR											
14...	2	0	21	460	4	.0	0	60	2.3	4.83	.000
APR											
12...	3	0	28	620	18	.0	0	50	2.0	3.47	2.67
MAY											
08...	--	5	43	550	--	.0	0	60	2.5	13.7	.000
JUN											
13...	2	0	22	530	6	.0	0	40	3.5	8.98	.000
JUL											
05...	3	10	19	1900	17	.0	0	20	3.2	--	--
AUG											
16...	5	0	26	670	38	.0	0	10	2.1	3.15	.762
SEP											
28...	3	0	13	150	40	.0	0	20	1.7	--	--

DATE	TIME	CALCIUM TOTAL RECOVERABLE (MG/L AS CA)	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)	SODIUM, TOTAL RECOVERABLE (MG/L AS NA)	POTASSIUM, TOTAL RECOVERABLE (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	OIL AND GREASE (MG/L)
OCT , 1977												
04...	1400	16	4.8	5.5	1.1	77	--	63	1.0	11	2.9	0
NOV												
09...	1230	17	6.0	8.1	1.5	85	0	70	1.7	15	4.5	--
JAN , 1978												
30...	1200	20	7.0	11	2.1	94	0	77	2.4	19	5.6	0
APR												
12...	0900	19	5.9	7.9	1.7	81	0	66	1.3	13	4.0	0
JUL												
05...	1400	21	3.9	4.0	1.4	45	0	37	.5	6.2	2.3	0

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---		---	160	211	---	184	161	136	109	126	138
2	---		---	158	206	---	182	160	133	112	126	139
3	---		---	167	204	---	181	160	130	111	129	141
4	---		---	162	201	---	180	160	131	113	127	139
5	---		---	163	199	---	183	159	129	116	128	147
6	---		---	165	192	---	183	161	127	117	129	142
7	---		---	172	188	---	180	162	126	116	129	143
8	---		---	182	189	179	178	161	125	114	130	144
9	---		---	182	187	185	176	161	124	114	138	146
10	---		---	182	188	186	175	160	121	114	131	147
11	164		---	183	212	191	174	161	121	115	132	150
12	165		---	180	188	189	173	157	122	114	134	150
13	168		---	178	185	189	170	153	121	116	133	148
14	166		---	173	184	189	167	152	120	118	134	149
15	169		---	171	183	188	165	150	117	116	134	150
16	174		---	170	185	186	163	149	---	116	134	151
17	173		---	173	188	186	161	148	111	116	132	151
18	172		---	174	193	190	162	149	108	116	134	150
19	179		---	176	194	195	159	150	105	116	138	150
20	181		---	175	193	191	160	152	101	117	136	149
21	183		---	176	196	195	159	156	102	118	136	146
22	186		---	175	196	193	158	158	102	118	136	146
23	185		---	176	198	193	158	161	98	121	136	147
24	186		183	178	197	193	159	161	98	126	136	145
25	182		182	187	---	186	161	159	100	121	138	149
26	---		180	189	---	182	163	156	99	121	137	150
27	---		188	194	---	183	163	150	102	121	136	158
28	---		180	201	---	185	162	147	106	121	136	156
29	---		172	204	---	184	162	144	105	122	137	153
30	---		171	210	---	184	162	141	107	123	138	151
31	---		162	211	---	185	---	136	---	124	138	---
MEAN	176		177	179	194	188	169	155	115	117	133	147

WTR YR 1978 MEAN 155 MAX 212 MIN 98

14112500 LITTLE KLICKITAT RIVER NEAR WAHKIACUS, WA

LOCATION.--Lat 45°50'34", long 121°03'27", in SW¼SE¼ sec.9, T.4 N., R.14 E., Klickitat County, Hydrologic Unit 17070106, on right bank 450 ft (137 m) upstream from bridge on State Highway 142, 1.1 mi (1.8 km) downstream from Bowman Creek, 2.3 mi (3.7 km) northeast of Wahkiacus and at mile 0.4 (0.6 km).

DRAINAGE AREA.--280 mi² (725 km²).

PERIOD OF RECORD.-- November 1944 to current year. Monthly discharge only for some periods, published in WSP's 1318 and 1935. Water quality records October 1976 to September 1977.

REVISED RECORDS.--WSP 1248: Drainage area. WSP 1348: 1945(M), 1946, 1947(M), 1948.

GAGE.--Water-stage recorder. Datum of gage is 570.34 ft (173.840 m) National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to Dec. 29, 1950, nonrecording gage and crest-stage indicator and Dec. 29, 1950 to Dec. 23, 1964, water-stage recorder at present site at datum 5.86 ft (1.786 m) higher. Dec. 24, 1964 to May 30, 1973, water-stage recorder at site 500 ft (152 m) downstream at present datum.

REMARKS.--Records good. Diversions above station for irrigation of 600 acres (2.4 km²). No regulation.

AVERAGE DISCHARGE.--33 years (water years 1946-78), 177 ft³/s (5.013 m³/s), 128,200 acre-ft/yr (158 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s (496 m³/s) Jan. 15, 1974, gage height, 17.58 ft (5.358 m), from rating curve extended above 2,600 ft³/s (73.6 m³/s) on basis of slope-area measurement at gage height 17.51 ft (5.337 m); minimum, 6.4 ft³/s (0.18 m³/s) July 23, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,200 ft³/s (34.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 13	1515	*5,960	169	*12.55	3.825	Jan. 15	1015	1,540	43.6	10.21	3.112

Minimum discharge, 13 ft³/s (0.37 m³/s) Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	41	83	90	369	349	246	137	69	29	19	23
2	32	40	167	80	428	317	234	134	70	50	18	24
3	30	40	278	95	618	303	222	126	69	42	17	26
4	29	38	164	110	484	301	208	123	69	44	16	28
5	28	38	126	130	508	314	199	123	69	39	17	28
6	28	37	117	145	676	317	191	118	66	34	17	28
7	30	37	108	150	849	383	184	110	66	30	16	28
8	31	37	92	272	842	380	171	103	66	29	15	28
9	30	37	82	477	902	345	163	103	63	28	14	32
10	28	37	80	612	666	324	157	103	70	27	13	43
11	28	38	592	548	572	319	154	103	67	27	14	43
12	27	38	492	553	491	305	149	101	69	27	15	42
13	28	38	3430	536	449	297	149	108	57	25	15	41
14	27	38	2460	691	413	277	146	126	54	24	15	41
15	24	40	1360	1300	399	266	145	133	53	22	16	38
16	25	42	864	1100	351	260	160	118	52	28	17	38
17	26	41	691	1210	334	255	149	112	51	28	18	38
18	26	39	579	917	311	273	144	107	47	27	18	37
19	27	35	447	1030	301	290	137	108	45	26	18	37
20	27	30	363	768	302	261	145	98	43	24	19	37
21	27	25	317	724	296	291	136	97	41	23	22	37
22	28	28	285	610	299	295	135	98	39	21	22	37
23	26	35	252	504	300	341	138	98	34	20	24	37
24	26	50	226	451	383	341	133	97	33	20	25	36
25	30	90	207	432	450	314	130	93	34	18	33	36
26	30	150	191	412	502	309	145	88	34	19	34	34
27	28	126	173	351	423	298	149	88	31	23	32	33
28	32	101	165	350	379	290	140	85	30	22	29	34
29	33	121	161	333	---	278	135	80	27	22	25	34
30	34	107	130	301	---	270	134	76	28	20	22	33
31	38	---	110	297	---	259	---	71	---	19	22	---
TOTAL	901	1594	14994	15579	13289	9442	4828	3257	1537	837	617	1031
MEAN	29.1	53.1	484	503	475	305	161	105	51.2	27.0	19.9	34.4
MAX	38	150	3430	1300	902	383	246	137	70	50	34	43
MIN	24	25	80	80	296	255	130	71	27	18	13	23
AC-FT	1790	3160	29740	30900	26360	18730	9580	6460	3050	1660	1220	2040

CAL YR 1977 TOTAL 25115.1 MEAN 68.8 MAX 3430 MIN 6.5 AC-FT 49820
WTR YR 1978 TOTAL 67906.0 MEAN 186 MAX 3430 MIN 13 AC-FT 134700

14113000 KLICKITAT RIVER NEAR PITT, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 45°45'24", long 121°12'32", in SW¼ sec.8, T.3 N., R.13 E., Klickitat County, Hydrologic Unit 17070106, on left bank 2.8 mi (4.5 km) south of Pitt, 4.8 mi (7.7 km) southwest of Klickitat, 5.3 mi (8.5 km) upstream from Silvias Creek, and at mile 7.0 (11.3 km).

DRAINAGE AREA.--1,297 mi^2 (3,359 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1909 to January 1912, October 1928 to current year. Published as "at Klickitat" 1909-12 and as "at Pitt" 1928-35.

REVISED RECORDS.--WSP 1348: 1910(M), 1929-33(M), 1934, 1935-38(M), 1940(M), 1942-43(M), 1946(M), 1948(M). WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 288.9 ft (88.06 m) National Geodetic Vertical Datum of 1929 (river-profile survey). July 3, 1909, to Jan. 31, 1912, nonrecording gage at site 7 mi (11 km) upstream at different datum. Oct. 1, 1928, to Sept. 30, 1935, nonrecording gage at site 3.5 mi (5.6 km) upstream at different datum.

REMARKS.--Water-discharge records excellent. Several small diversions above station for irrigation of about 7,500 acres (30 km^2) mostly in vicinity of Glenwood. The largest of these is Hellroaring Irrigation Canal with a maximum flow of 74.5 ft^3/s (2.11 m^3/s) Aug. 13, 1974, which at times diverts the entire flow of Hellroaring Creek (tributary to Big Muddy Creek). No regulation.

AVERAGE DISCHARGE.--52 years (water years 1910-11, 1929-78), 1,621 ft^3/s (45.91 m^3/s), 1,174,000 acre-ft/yr (1,480 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft^3/s (1,340 m^3/s) Jan. 15, 1974, gage height, 17.12 ft (5.218 m) from high-water mark in well, from rating curve extended above 13,000 ft^3/s (368 m^3/s) on basis of slope-area measurement at gage height 14.34 ft (4.371 m); minimum, 445 ft^3/s (12.5 m^3/s) Dec. 17, 1964, gage height, 3.62 ft (1.103 m).

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 4,000 ft^3/s (113 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 3	0115	10,700	303	9.85	3.002	Jan. 17	0800	4,820	137	7.38	2.249
Dec. 14	1415	*14,800	419	*11.13	3.392	Feb. 9	0515	5,200	147	7.57	2.307

Minimum discharge, 572 ft^3/s (16.2 m^3/s) Oct. 20-23, gage height, 4.01 ft (1.222 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	642	681	1470	1180	1800	2200	2820	1980	1810	1370	896	746
2	635	914	4930	1160	1820	2050	2630	2030	1920	1500	888	739
3	628	831	7480	1260	2460	1940	2440	2050	2050	1400	891	776
4	614	768	4070	1320	2370	1940	2300	1970	2180	1320	891	776
5	612	750	2840	1350	2420	1910	2240	1880	2330	1260	871	746
6	612	719	2460	1370	3010	1890	2130	1780	2460	1240	851	784
7	627	697	2470	1300	3620	2050	2010	1750	2270	1260	852	762
8	621	687	2060	1520	4290	2210	1920	1880	2170	1260	843	732
9	610	666	1840	1970	4670	2110	1840	1930	2170	1220	849	892
10	604	691	1740	2380	3900	2060	1860	2080	2130	1180	836	1240
11	595	777	3010	2400	3400	2050	1950	2060	1950	1120	806	925
12	593	751	3170	2440	3060	2020	1890	1980	1860	1080	806	845
13	593	742	9570	2420	2810	1980	1860	2070	1740	1060	769	806
14	589	749	12000	2600	2490	1900	1820	2520	1700	1080	754	784
15	584	826	9500	3950	2420	1830	1780	2550	1570	1100	769	769
16	587	875	6830	4130	2170	1790	1880	2340	1520	1180	845	746
17	584	798	5900	4520	2070	1790	1800	2200	1470	1120	769	739
18	583	752	4580	3970	1920	1890	1770	2130	1480	1070	754	732
19	584	727	3750	4310	1860	2080	1770	2140	1510	1050	746	725
20	577	656	3200	3620	1850	2040	1810	2320	1510	1050	746	717
21	574	638	2890	3440	1820	2180	1730	2470	1500	1020	762	725
22	575	669	2650	3140	1820	2350	1710	2450	1480	1010	762	725
23	583	683	2440	2740	1860	2670	1690	2240	1430	1010	754	725
24	596	677	2260	2510	2170	2850	1630	2080	1390	1000	806	739
25	635	966	2060	2360	2420	2800	1640	1950	1350	972	900	732
26	651	2460	1890	2260	2590	2860	1870	1870	1300	1010	806	732
27	613	1850	1680	2030	2480	2840	1990	1840	1270	1070	769	732
28	602	1510	1620	1950	2330	2810	2050	1890	1290	986	754	717
29	639	1730	1580	1880	---	2880	2070	1880	1380	940	717	710
30	742	1720	1500	1760	---	2950	2060	1830	1420	925	717	710
31	713	---	1420	1690	---	2950	---	1800	---	911	732	---
TOTAL	18997	27960	114860	74930	71900	69790	58960	63860	51650	34774	24911	23228
MEAN	613	932	3705	2417	2568	2251	1965	2060	1722	1122	804	774
MAX	742	2460	12000	4520	4670	2950	2820	2550	2460	1500	900	1240
MIN	574	638	1420	1160	1880	1790	1630	1750	1270	911	717	710
AC-FT	37680	55460	227800	148600	142600	138400	116900	126700	102400	68970	49410	46070

CAL YR 1977 TOTAL 367946 MEAN 1008 MAX 12000 MIN 550 AC-FT 729800
WTR YR 1978 TOTAL 635820 MEAN 1742 MAX 12000 MIN 574 AC-FT 1261000

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--At footbridge 250 ft (76 m) upstream from gaging station.

PERIOD OF RECORD.--Water years 1950-70, 1973, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1950 to September 1970.

WATER QUALITY DATA

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT , 1977												
12...	1805	593	66	7.6	9.4	3	--	--	1	38	38	0
NOV												
15...	1505	852	71	7.3	7.2	6	--	--	28	28	31	0
DEC												
15...	1000	9690	48	7.0	6.6	95	--	11.1	180	250	26	6
JAN , 1978												
18...	1630	3750	73	7.1	4.6	20	--	--	10	390	33	1
FEB												
14...	1440	2530	69	7.4	4.4	6	--	13.2	6	14	36	8
MAR												
13...	1730	1970	74	7.2	6.6	3	--	11.9	4	25	32	0
APR												
12...	1630	1850	63	8.2	9.8	1	--	11.4	<1	K1100	27	0
MAY												
02...	1450	2050	62	7.2	11.6	2	--	11.3	3	10	30	3
JUN												
05...	1615	2370	46	7.2	16.4	5	--	9.6	45	26	28	6
JUL												
05...	1630	1250	58	7.4	15.8	--	2.6	9.3	54	1	26	0
AUG												
01...	1640	884	65	8.2	18.5	--	7.4	9.9	7	12	26	0
SEP												
06...	1630	799	71	7.6	14.4	--	2.1	10.1	3	5	29	0

K Results based upon colony counts outside the ideal range.

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT , 1977												
12...	8.7	4.0	5.1	21	.4	1.9	49	0	40	2.0	3.2	1.0
NOV												
15...	6.8	3.3	4.2	22	.3	1.4	45	0	37	3.6	2.7	.9
DEC												
15...	7.3	2.0	3.2	20	.3	1.2	25	0	21	4.0	4.5	2.5
JAN , 1978												
18...	7.6	3.5	3.9	19	.3	1.4	39	0	32	5.0	11	1.9
FEB												
14...	8.7	3.5	4.2	20	.3	1.0	34	0	28	2.2	12	5.0
MAR												
13...	6.9	3.5	4.8	24	.4	1.3	44	0	36	4.4	1.9	1.3
APR												
12...	6.0	2.8	3.3	20	.3	1.2	40	0	33	.4	2.4	1.2
MAY												
02...	8.5	2.1	2.9	17	.2	1.2	33	0	27	3.3	3.3	3.3
JUN												
05...	7.4	2.4	3.1	18	.3	1.2	27	0	22	2.7	9.0	--
JUL												
05...	5.6	3.0	3.4	21	.3	1.3	--	--	27	--	3.7	1.1
AUG												
01...	5.6	2.8	3.6	22	.3	1.5	--	--	28	--	5.6	1.5
SEP												
06...	6.0	3.5	5.0	26	.4	1.5	--	--	36	--	2.3	2.4

KLICKITAT RIVER BASIN

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER QUALITY DATA

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)
OCT , 1977												
12...	.1	29	56	77	.08	89.7	8	.00	.00	--	--	--
NOV												
15...	.1	27	73	69	.10	168	11	.02	.02	--	--	--
DEC												
15...	.3	29	218	62	.30	5700	171	.29	.00	--	--	--
JAN , 1978												
18...	.1	29	87	78	.12	881	37	.29	.02	--	--	--
FEB												
14...	.1	30	75	81	.10	512	26	.54	.02	.03	.05	.04
MAR												
13...	.1	28	67	70	.09	356	4	.14	.00	.09	.09	.08
APR												
12...	.0	25	64	62	.09	320	1	.06	.01	.13	.14	.14
MAY												
02...	.1	25	59	63	.08	327	5	.01	.00	.30	.30	.01
JUN												
05...	.1	21	44	--	.06	282	30	.03	.03	1.5	1.5	1.3
JUL												
05...	.1	25	56	69	.08	189	6	.06	.03	.15	.18	.08
AUG												
01...	.1	28	60	66	.08	143	4	.01	.03	.47	.50	.28
SEP												
06...	.1	28	73	70	.10	157	8	.05	.00	.16	.16	.00

DATE	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT , 1977											
12...	--	--	--	.04	.04	--	--	--	3	4.8	83
NOV											
15...	.06	--	--	.04	.03	1.9	--	--	14	32	87
DEC											
15...	.27	--	--	.35	.08	8.0	--	--	710	18600	32
JAN , 1978											
18...	.16	--	--	.12	.08	--	--	--	78	790	29
FEB											
14...	.01	.59	2.6	.05	.04	--	2.5	.2	14	96	37
MAR											
13...	.01	.23	1.0	.05	.02	1.7	--	--	7	37	39
APR											
12...	.00	.20	.89	.04	.02	--	1.6	.6	4	20	65
MAY											
02...	.29	.31	1.4	.07	.04	1.8	--	--	9	50	61
JUN											
05...	.16	1.5	6.8	.04	.01	1.6	--	--	41	262	51
JUL											
05...	.22	.24	1.1	.04	.03	--	1.9	.3	16	54	31
AUG											
01...	.22	.51	2.3	.03	.02	.7	--	--	15	36	96
SEP											
06...	.19	.21	.93	.04	.04	1.0	--	--	24	56	84

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)
OCT , 1977										
12...	1805	1	1	0	500	500	0	<10	<9	1
JAN , 1978										
18...	1630	0	0	0	100	0	100	1	1	0
APR										
12...	1630	3	0	3	200	200	0	2	1	1
JUL										
05...	1630	1	0	1	300	100	200	0	0	1

KLICKITAT RIVER BASIN

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER QUALITY DATA

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)
OCT . 1977										
12...	0	0	0	<50	<50	0	<10	<5	5	190
JAN . 1978										
18...	10	10	0	1	1	0	16	14	2	2300
APR										
12...	10	0	10	2	0	0	5	3	2	810
JUL										
05...	0	0	0	2	0	2	18	15	3	390

DATE	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)
OCT . 1977										
12...	--	60	<100	<96	14	30	30	0	.0	.0
JAN . 1978										
18...	--	170	13	10	3	40	30	10	.3	.3
APR										
12...	--	60	27	23	4	10	10	0	.5	.0
JUL										
05...	310	80	37	30	7	10	10	0	.3	.2

DATE	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
OCT . 1977										
12...	.0	0	0	0	<10	<10	0	420	410	8
JAN . 1978										
18...	.0	0	0	0	0	0	0	30	0	30
APR										
12...	.1	0	0	0	0	0	0	10	10	0
JUL										
05...	.1	0	0	0	0	0	0	110	100	10

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1977 TO JULY 1978

DATE	NOV 15,77	MAR 13,78	MAY 2,78	JUN 5,78	JUL 5,78
TIME	1505	1730	1450	1630	0800
TOTAL CELLS/ML	348	2000	1800	1100	870
DIVERSITY: DIVISION	0.0	0.6	1.3	1.0	1.0
.CLASS	0.0	0.6	1.3	1.0	1.0
..ORDER	0.2	1.2	1.4	1.2	1.1
...FAMILY	2.6	2.8	3.1	2.7	1.7
....GENUS	2.9	2.8	3.4	3.0	1.8

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	250	13	--	-	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	--	-	--	-	29	2	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	--	-	86	5	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	7	2	350#	18	--	-	--	-	22	3
....MELOSIRA	7	2	--	-	--	-	57	5	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	140	8	43	4	130#	15
....COCCONEIS	37	10	--	-	43	2	29	3	22	3
....RHOICOSPHENIA	7	2	--	-	--	-	29	3	--	-
...CYMBELLACEAE										
....CYMBELLA	--	-	58	3	100	6	100	9	67	8
...DIATOMACEAE										
....DIATOMA	44	12	77	4	29	2	29	3	--	-
...FRAGILARIACEAE										
....ASTERIONELLA	37	10	--	-	--	-	--	-	--	-
....HANNAEA	--	-	*	0	190	11	43	4	--	-
....SYNEDRA	44	12	170	9	100	6	29	3	--	-
...GOMPHONEMATACEAE										
....GOMPHONEIS	--	-	--	-	--	-	43	4	--	-
....GOMPHONEMA	44	12	150	8	140	8	14	1	44	5
...MERIDIONACEAE										
....MERIDION	--	-	39	2	--	-	14	1	--	-
...NAVICULACEAE										
....NAVICULA	37	10	580#	30	160	9	14	1	44	5
....NEIDIUM	--	-	--	-	14	1	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	110#	29	270	14	270#	16	57	5	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	360#	20	470#	42	530#	62
...RIVULARIACEAE										
....RAPHIDIOPSIS	--	-	--	-	--	-	140	13	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	--	-	--	-	86	5	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

Additional phytoplankton data available from District office in Tacoma.

DATE	TIME	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	LENGTH OF EXPO-SURE (DAYS)
OCT , 1977						
12...	1805	2.13	2.36	.095	.003	29
FEB , 1978						
14...	1440	.000	.079	.020	.009	27
APR						
12...	1630	1.73	2.76	1.38	.580	30
JUL						
05...	1630	1.18	1.50	.230	.130	30

ALDER CREEK BASIN

Unnamed tributary seepage investigation

Five series of discharge measurements were made during the 1978-79 water years, on June 13, 17, 22, July 26, and Oct. 10, 1978, on an unnamed tributary to Alder Creek, a minor tributary to the unnamed tributary, and Alder Creek, to study the effects of irrigation on the amount of surface water reaching Alder Creek. The drainage area of the unnamed tributary basin is 7.53 mi^2 (19.50 km^2) and the tributary length is 5.0 mi (8.0 km). The elevation change in the tributary basin is 2,776 ft (846 m) and the tributary flows through alluvium and glacial drift bounded by granite in the upper reaches and through a series of flat marshy areas and over steep benches in the lower reaches. All measurements, except those for June 17, were made during periods of constant natural base flows to the streams; for 8 days before the investigation no measureable precipitation had fallen. All measurements except those for Oct. 10 were affected by irrigation practices; a holding pond was filling or discharging and irrigation was or was not taking place; the hydrologic system was therefore not in equilibrium. Indicated gains or losses may be substantiably in error as affected by small inaccuracies in open-channel measurements. Specific conductance measurements were used to assist in defining the origin of flow. No measurements have previously been made on Alder Creek near its mouth between 1918 and 1965.

Stream	Site No.	Tributary to	Location	Drainage Area (mi^2)	Date	Discharge Measurement (ft^3/s)	Gain or Loss (ft^3/s)	Specific Conductance Measurement (micromhos)
Unnamed tributary	1	Alder Creek	Lat 48°05'10", long 118°08'31" in SE¼NW¼ sec.22, T.30 N., R.37 E., Stevens County, 20 ft downstream from road fill, 0.3 mi southeast Hudspeth house, 2.1 mi upstream from mouth and 3.4 mi northeast of Fruitland.	3.85	6-13-78	0.10	----	485
					6-17-78 1/	0.09	----	468
					6-22-78	0.12	----	440
					7-26-78	0.09	----	480
					10-10-78	0.09	----	485
Unnamed tributary	2	Alder Creek	Lat 48°05'11", long 118°08'58", in SE¼NE¼ sec.21, T.30 N., R.37 E., Stevens County, 500 ft upstream from Hudspeth pond, 500 ft east of Hudspeth barns on Forbes Road, 1.9 mi upstream from mouth and 3.0 mi northeast of Fruitland.	4.04	6-13-78	0.29	+.19	480
					6-17-78	0.13	+.04	430
					6-22-78	0.17	+.05	500
					7-26-78	0.23	+.14	510
					10-10-78	0.25	+.16	520
Unnamed tributary	3	Alder Creek	Lat 48°05'09", long 118°09'07", in NE¼SE¼ sec.21, T.30 N., R.37 E., Stevens County, 10 ft downstream from Hudspeth pond, 600 ft southeast Hudspeth barns on Forbes Road, 1.8 mi upstream from mouth, and 2.9 mi northeast of Fruitland.	4.07	6-13-78	0.01	-.28	580
					6-17-78	0.23	+.10	500
					6-22-78	0.001	-.17	601
					7-26-78	0.000	-.23	---
					10-10-78	0.17	-.08	520
Unnamed tributary	5	Alder Creek	Lat 48°05'11", long 118°09'29", in SW¼NE¼ sec.21, T.30 N., R.37 E., Stevens County, 100 ft upstream from right bank minor tributary, 500 ft west of Forbes Road, 1.5 mi upstream from mouth, and 2.5 mi northeast of Fruitland.	4.89	6-13-78	0.04	+.03	810
					6-17-78	0.15	-.08	540
					6-22-78	0.005	.00	600
					7-26-78	0.000	.00	---
					10-10-78	0.18	+.01	580
Unnamed tributary	6	Alder Creek	Lat 48°04'40", long 118°10'18", in NE¼NE¼ sec.29, T.30 N., R.37 E., Stevens County, 100 ft downstream from Forbes Road, 2,500 ft upstream from mouth and 1.5 mi northeast of Fruitland.	7.13	6-13-78	0.17	+.13	720
					6-17-78	0.17	+.02	620
					6-22-78	0.09	+.08	720
					7-26-78	0.01	+.01	460
					10-10-78	0.16	-.02	620
Unnamed tributary	7	Alder Creek	Lat 48°04'28", long 118°10'23", in NE¼NE¼ sec.29, T.30 N., R.37 E., Stevens County, 1,000 ft downstream from Forbes Road, 1,600 ft upstream from mouth and 1.4 mi northeast of Fruitland.	7.48	6-13-78	0.11	-.06	---
					6-17-78	0.19	+.02	590
					6-22-78	0.05	-.04	699
					7-26-78	0.000	-.01	---
					10-10-78	0.14	-.02	610
Unnamed tributary	8	Alder Creek	Lat 48°04'19", long 118°10'33", in SW¼NE¼ sec.29, T.30 N., R.37 E., Stevens County, 100 ft upstream from mouth, 1,200 ft east of Forbes Road, and 1.0 mi east of Fruitland.	7.53	6-13-78	0.06	-.05	700
					6-17-78	0.09	-.10	615
					6-22-78	0.02	-.03	680
					7-26-78	0.000	.00	---
					10-10-78	0.12	-.02	610
Minor tributary	4	Unnamed tributary	Lat 48°05'14", long 118°09'33", in SW¼NE¼ sec.21, T.30 N., R.37 E., Stevens County, 100 ft upstream from mouth, 500 ft west Forbes Road, 2.5 mi northeast of Fruitland.	1.08	6-13-78	0.06	---	700
					6-17-78	0.04	---	780
					6-22-78	0.04	---	710
					7-26-78	0.03	---	710
					10-10-78	0.000	---	---
Alder Creek	9	Columbia River	Lat 48°04'17", long 118°10'33", in SE¼NE¼ sec.29, T.30 N., R.37 E., Stevens County, 10 ft upstream from right bank unnamed tributary, 1,300 ft east of Forbes Road, and 1.0 mi east of Fruitland.	20.93	6-13-78	1.36	---	350
					6-17-78	0.83	---	355
					6-22-78	0.78	---	399
					7-26-78	0.57	---	420
					10-10-78	0.82	---	550

1/ June 17 measurements not used in analysis because of antecedent precipitation.

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained and discharge measurements may have been made for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1978

Station No.	Station name	Location	Drainage area mi^2 (km^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Pend Oreille River basin					
12396000	Calispell Creek near Dalkena, Wa.	Lat 48°14'40", long 117°20'26", in NE¼SW¼ sec.26, T.32 N., R.43 E., Pend Oreille County, 2.4 mi (3.9 km) upstream from Calispell Lake, and 4.8 mi (7.7 km) west of Dalkena.	68.3 (177)	1950-73‡, 1974-	5-16-78	6.51	274
12396100	Winchester Creek near Cusick, Wa.	Lat 48°16'52", long 117°21'44", in NW¼ sec.15, T.32 N., R.43 E., Pend Oreille County, at county road around Calispell Lake and 4.8 mi (7.7 km) southwest of Cusick.	16.8 (43.5)	1954-	5-16-78	10.30	66
		Deep Creek basin					
12399600	Deep Creek near Northport, Wa.	Lat 48°55'47", long 117°44'59", in SE¼NW¼ sec.34, T.40 N., R.40 E., Stevens County, on left bank 0.5 mi (0.8 km) upstream from mouth, 2.0 mi (3.2 km) northeast of Northport.	191 (495)	1972-75‡, 1976-	5-29-78	3.48	357
		Colville River basin					
12407520	Deer Creek near Valley, Wa.	Lat 48°07'06", long 117°47'52", in NW¼NW¼ sec.8, T.30 N., R.40 E., Stevens County, on left bank at downstream side of county road bridge, 2.0 mi (3.2 km) upstream from confluence with Sheep Creek, 5 mi (8.0 km) southwest of Valley, and at river mile 2.0 (3.2 km).	36.0 (93.2)	1959-72‡, 1973-	4- 6-78	2.41	104
12408300	Little Pend Oreille River near Colville, Wa.	Lat 48°27'58", long 117°44'53", in NW¼NW¼ sec.10, T.34 N., R.40 E., Stevens County, on right bank 320 ft (98 m) upstream from abandoned railroad bridge, 0.5 mi (0.8 km) downstream from Bear Creek, 6.2 mi (10.0 km) east of Arden, 9.2 mi (14.8 km) southeast of Colville, and at mile 7.0 (11.3 km).	132 (342)	1957-75‡, 1976-	5-16-78	3.15	279
12408420	Haller Creek near Arden, Wa.	Lat 48°28'02", long 117°34'24", in SW¼SW¼ sec.4, T.34 N., R.39 E., Stevens County, 10 ft (3 m) downstream from county road bridge, 1.5 mi (2.4 km) northwest of Arden.	37.0 (95.8)	1959-70‡, 1971-	4- 5-78	1.67	24
		Spokane River basin					
12427000	Little Spokane River at Elk, Wa.	Lat 48°01'20", long 117°16'19", in NW¼SE¼ sec.8, T.29 N., R.44 E., Spokane County, 0.6 mi (1.0 km) upstream from and northeast of Elk.	115 (298)	1948-71‡, 1972-	12-14-77	1.88	133
		Sanpoil River basin					
12433890	Sanpoil River above Thirteenmile Creek, near Republic, Wa.	Lat 48°28'38", long 118°43'41", in SE¼NW¼ sec.1, T.34 N., R.32 E., Ferry County, Colville Indian Reservation, on right bank downstream wingwall of bridge on State Highway 21, 25 ft (7.6 m) upstream from Thirteenmile Creek, 2.1 mi (3.4 km) upstream from West Fork Sanpoil River, 11.8 mi (19.0 km) south of Republic and at mile 45.5 (73.2 km).	263 (681)	1972-74‡, 1975-	5-22-78	3.33	349
12434110	West Fork Sanpoil River near Republic, Wa.	Lat 48°27'33", long 118°44'57", in NE¼SW¼ sec.11, T.34 N., R.32 E., Ferry County, Colville Indian Reservation, on upstream left-bank wingwall of bridge on State Highway 21, 13.9 mi (22.4 km) south of Republic, and at mile 0.5 (0.8 km).	308 (798)	1972-74‡, 1975-	5 22 78	3.33	1,020
12434500	Sanpoil River near Keller, Wa.	Lat 48°06'26", long 118°41'51", in NE¼SE¼ sec.18, T.30 N., R.33 E., Ferry County, Colville Indian Reservation, on right bank, 0.3 mi (0.5 km) upstream from Brush Creek, 2.2 mi (3.5 km) north of Keller, and at mile 14.1 (22.7 km).	880 (2,279)	1952-55‡, 1956-59, 1972-74‡, 1975-	5-22-78	6.06	1,810
		Nespelem River basin					
12437505	Nespelem River below millpond, at Nespelem, Wa.	Lat 48°09'55", long 118°58'46", on south line, SE¼SE¼ sec.24, T.31 N., R.30 E., Okanogan County, Colville Indian Reservation, on left bank on upstream wingwall of county bridge, at Nespelem, 0.2 mi (0.3 km) downstream from millpond, and 3.9 mi (6.3 km) upstream from Little Nespelem River.	123 (319)	1972-74‡, 1975-	4-28-78	2.75	252

‡ Operated as continuous-record gaging station.

Annual maximum discharge at crest-stage partial-record stations during water year 1978

Station No.	Station name	Location	Drainage area mi^2 (km^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Okanogan River basin					
12442000	Toats Coulee Creek near Loomis, Wa.	Lat 48°50'01", long 119°41'32", in NE¼SE¼ sec.33, T.39 N., R.25 E., Okanogan County, 600 ft (183 m) upstream from Deer Creek, 1,800 ft (549 m) upstream from intake of Whitestone Irrigation Canal and 2.8 mi (4.5 km) northwest of Loomis.	130 (337)	1920-26‡, 1957-70‡, 1971-	6- 6-78	5.09	840
12445900	Omak Creek near Omak, Wa.	Lat 48°22'02", long 119°26'38", in NE¼SW¼ sec.16, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, on right bank downstream wingwall of county highway bridge, 1.3 mi (2.1 km) upstream from Mission Creek, and 3.9 mi (6.3 km) southeast of Omak.	119 (308)	1972-74‡, 1975-76 1977‡, 1978-	6- 4-77 5-15-78	--- 2.83	f 214
		Methow River basin					
12447380	Pine Creek near Mazama, Wa.	Lat 48°34'48", long 120°37'33", in NE¼ sec.32, T.36 N., R.18 E., Okanogan County, at State Highway 20, 10 mi (16.1 km) west of Mazama.	4.63 (12.0)	1966-	6- 6-78	>19.20	89
		Wenatchee River basin					
12455000	Wenatchee River below Wenatchee Lake, Wa.	Lat 47°48'30", long 120°43'20", in sec.28, T.27 N., R.17 E., on left bank 0.1 mi (0.2 km) downstream from lake outlet, 4.8 mi (7.7 km) northwest of Plain, and 17 mi (27 km) northwest of Leavenworth.	273 (707)	1932-58‡, 1959-	6- 6-78	75.38	6,910
12458000	Icicle Creek above Snow Creek near Leavenworth, Wa.	Lat 47°32'28", long 120°43'08", in SE¼SE¼ sec.28, T.24 N., R.17 E., Chelan County, 1,000 ft (305 m) upstream from Icicle Canal diversion dam and 4.8 mi (7.7 km) southwest of Leavenworth.	193 (500)	1936-71‡, 1973-	6- 4-78	11.76	6,090
12461200	East Branch Mission Creek tributary near Cashmere, Wa.	Lat 47°22'50", long 120°29'20", in SW¼ sec.20, T.22 N., R.19 E., Chelan County, at U.S. Forest Service road, 9.7 mi (15.6 km) south of Cashmere.	2.49 (6.45)	1955-	3-31-78	11.69	11.8
12461400	Mission Creek above Sand Creek near Cashmere, Wa.	Lat 47°25'48", long 120°30'28", in SW¼NE¼ sec.6, T.22 N., R.19 E., Chelan County, 400 ft (122 m) upstream from Sand Creek, 7.0 mi (11.3 km) south of Cashmere.	39.8 (103)	1959-71‡, 1972-	3-31-78	4.35	720
		Crab Creek basin					
12464780	Crab Creek above Sylvan Lake, near Lamona, Wa.	Lat 47°18'33", long 118°29'53", in NE¼SW¼ sec.14, T.21 N., R.34 E., Lincoln County, on right bank 2.0 mi (3.2 km) upstream from Sylvan Lake, 25 ft (7.6 m) downstream from concrete dam, and 3.5 mi (5.6 km) south of Lamona.	542 (1,404)	1972-74‡, 1975-	2- 7-78	11.00	1,750
12464800	Coal Creek at Mohler, Wa.	Lat 47°24'25", long 118°19'04", in SE¼SE¼ sec.7, T.22 N., R.36 E., Lincoln County, on left bank 25 ft (7.6 m) upstream from bridge on county road, 0.3 mi (0.5 km) east of Mohler, and 15 mi (24.1 km) upstream from mouth.	64.7 (167.6)	1963-74‡, 1975-	7- 7-78	2.44	377
12465400	Wilson Creek below Corbett Draw near Almira, Wa.	Lat 47°39'47", long 118°55'46", in SW¼NW¼ sec.16, T.25 N., R.31 E., Lincoln County, 65 ft (20 m) downstream from Corbett Draw and 3.5 mi (5.6 km) south of Almira.	327 (847)	1969-71‡, 1972-	2- 7-78	7.03	2,350
12465500	Wilson Creek at Wilson Creek, Wa.	Lat 47°25'50", long 119°06'10", in SW¼NW¼ sec.6, T.22 N., R.30 E., Grant County, 1.0 mi (1.6 km) northeast of town of Wilson Creek and at mile 1.0 (1.6 km).	427 (1,106)	1951-57‡, 1958-73‡, 1974-	7- 4-78	10.27	2,520
12471270	Farrier Coulee near Schrag, Wa.	Lat 47°07'33", long 118°50'17", in SW¼NE¼ sec.19, T.19 N., R.32 E., Adams County, on left bank 3.8 mi (6.1 km) upstream from confluence with Bauer Coulee, and 3.7 mi (5.0 km) north of Schrag.	42.0 (109)	1963-74‡, 1975-	7- 4-78	4.40	197
		Yakima River basin					
12491700	Hause Creek near Rimrock, Wa.	Lat 46°40'33", long 121°04'49", in NE¼ sec.28, T.14 N., R.14 E., Yakima County, at State Highway 14, 0.1 mi (0.2 km) west of Tieton Ranger Station and 2.5 mi (4.0 km) east of Rimrock.	3.91 (10.1)	1955-	12- 2-78	9.93	133
		Deadman Creek basin					
13343790	Meadow Creek tributary near Central Ferry, Wa. (discontinued)	Lat 46°35'06", long 117°44'51", in SE¼NE¼ sec.26, T.13 N., R.40 E., Garfield County, 3.2 mi (5.1 km) south of Central Ferry.	1.63 (4.22)	1970-78	12-14-77	21.64	350

‡ Operated as continuous-record station.
> More than.
f Revised, maximum not determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1978

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Deadman Creek basin--Continued					
13343800	Meadow Creek near Central Ferry, Wa. (discontinued)	Lat 46°35'51", long 117°46'54", in SE¼NW¼ sec.22, T.13 N., R.40 E., Garfield County, on right bank 5 ft (2 m) downstream from county bridge, 1.3 mi (2.1 km) upstream from mouth, 2.0 mi (3.2 km) southeast of Central Ferry, and 5.4 mi (8.7 km) north of Dodge.	66.2 (171.5)	1963-74‡, 1975-78	7- 8-78	6.76	1,100
		Tucannon River basin					
13344506	Kellogg Creek tributary No. 2 near Starbuck, Wa. (discontinued)	Lat 46°28'46", long 118°06'47", in SW¼NW¼ sec.31, T.12 N., R.38 E., Columbia County, at Kellogg Creek road 2.8 mi (4.5 km) southeast of Starbuck.	2.95 (7.64)	1970-78	7- 8-78	24.57	169
		Palouse River basin					
13349300	Palouse River tributary at Colfax, Wa.	Lat 46°53'22", long 117°22'19", in SE¼SW¼ sec.10, T.16 N., R.43 E., Whitman County, at U.S. Highway 295, about 1 mi (1.6 km) west of Colfax.	2.10 (5.44)	1955-	7- 7-78	16.84	15
13349400	Pine Creek at Pine City, Wa.	Lat 47°12'24", long 117°30'14", on line between NW¼ and NE¼ sec.27, T.20 N., R.42 E., Whitman County, on right bank 1.0 mi (1.6 km) east of Pine City and 2.3 mi (3.7 km) west of Malden.	302 (782)	1961-75‡, 1976-	12-14-77	7.80	820
13350500	Union Flat Creek near Colfax, Wa.	Lat 46°48'37", long 117°25'52", in NW¼NW¼ sec.8, T.15 N., R.43 E., Whitman County, 20 ft (6 m) upstream from county road bridge 6.0 mi (9.7 km) southwest of Colfax.	189 (490)	1953-71‡, 1976-	2- 7-78	6.98	817
13352500	Cow Creek at Hooper, Wa.	Lat 46°45'46", long 118°08'46", in NW¼NW¼ sec.26, T.15 N., R.37 E., Adams County, on county road bridge, 0.5 mi (0.8 km) upstream from mouth and 0.5 mi (0.8 km) north of Hooper.	679 (1,759)	1951-54‡, 1962-70‡, 1971-	12-15-77	----	e15
		Walla Walla River basin					
14013000	Mill Creek near Walla Walla, Wa.	Lat 46°00"29", long 118°07'03", in SW¼SW¼ sec.7, T.6 N., R.38 E., Walla Walla County, on left bank, 0.1 mi (0.2 km) downstream from Railroad Canyon, 4.0 mi (6.4 km) downstream from city of Walla Walla diversion dam, 4.4 mi (7.1 km) upstream from Blue Creek, 11.5 mi (18.5 km) southeast of Walla Walla, and at mile 21.2 (34.1 km).	59.6 (154.4)	1913-17‡, 1938-76‡, 1977-	12- 2-77	17.51	1,620
		Klickitat River basin					
14107000	Klickitat River above West Fork near Glenwood, Wa.	Lat 46°15'54", long 121°14'38", in NW¼SW¼ sec.18, T.9 N., R.13 E., Yakima County, Yakima Indian Reservation, on right bank 0.8 mi (1.3 km) upstream from Swamp Creek, 1.9 mi (3.1 km) upstream from West Fork, 17.0 mi (27.4 km) north of Glenwood, and at mile 64.7 (104.1 km).	151 (391)	1944-77‡, 1978-	12- 2-77	4.96	4,800
14110000	Klickitat River near Glenwood, Wa.	Lat 46°05'20", long 121°15'30", in SE¼ sec.14, T.7 N., R.12 E., Yakima County, 0.4 mi (0.6 km) downstream from Dairy Creek and 5.2 mi (8.4 km) north of Glenwood.	360 (932)	1909-71‡, 1972-	12- 2-77	8.04	9,300
14112000	Little Klickitat River near Goldendale, Wa. (discontinued)	Lat 45°50'40", long 120°47'42", in NE¼SW¼ sec.10, T.4 N., R.16 E., Klickitat County, 400 ft (122 m) upstream from State Highway 97 bridge, and 2.1 mi (3.4 km) northeast of Goldendale.	83.5 (216)	1911-12‡, 1947-51‡, 1958-70‡, 1971-78	12-13-77	7.92	2,550
14112200	Little Klickitat River tributary near Goldendale, Wa.	Lat 45°50'15", long 120°47'50", in NW¼ sec.15, T.4 N., R.16 E., Klickitat County, at county road 1.5 mi (2.4 km) northeast of Goldendale.	.71 (1.84)	1960-	1978	10.56	65
14112400	Mill Creek near Blockhouse, Wa.	Lat 45°51'34", long 120°57'49", in NW¼SW¼ sec.5, T.4 N., R.15 E., Klickitat County, on left bank 1.9 mi (3.1 km) northwest of Blockhouse and 3.5 mi (5.6 km) upstream from mouth.	26.9 (69.7)	1964-72‡, 1973-	12-13-77	4.02	194

‡ Operated as continuous-record station.
e Estimated.

Discharge measurements made at miscellaneous sites during water year 1978

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Pend Oreille River basin				
12395900 Davis Creek	Pend Oreille River	Lat 48°13'51", long 117°17'14", in NE¼ sec.31, T.32 N., R.44 E., Pend Oreille County, at State Highway 311 at outlet of Davis Lake, 2.5 mi (4.0 km) southeast of Dalkena.	16.8	1954-73a, 1962-63, 1965, 1969	12-17-62	c25.3
12396000 Calispell Creek	Do.....	Lat 48°14'40", long 117°20'26", in NE¼SW¼ sec.26, T.32 N., R.43 E., Pend Oreille County, 2.4 mi (3.9 km) upstream from Calispell Lake, and 4.8 mi (7.7 km) west of Dalkena.	68.3	1950-73‡, 1974a, 1974	5-18-78 9-11-78	239 24.9
12398000 Sullivan Creek	Do.....	Lat 48°51'40", long 117°21'50", in SW¼SW¼ sec.22, T.39 N., R.43 E., Pend Oreille County, at road crossing on State Highway 31, 0.5 mi (0.8 km) east of Metaline Falls, and at river mile 0.5 (0.8 km).	142	1953-68‡	8- 8-77	*35.2
		Spokane River basin				
12419495 Spokane River	Columbia River	Lat 47°41'55", long 117°02'36", in NW¼ sec.6, T.25 N., R.46 E., Spokane County, 2.1 mi (3.4 km) southeast of Moab (Newman Lake post office), 0.15 mi (0.24 km) downstream from the Idaho-Washington line at U.S. Highway 10 crossing.	b3,870	1906, 1977	6- 2-78 9-19-78	12,800 1,700
12423550 Hangman Creek tributary	Hangman Creek	Lat 47°19'16", long 117°10'42", in SE¼ sec.12, T.21 N., R.44 E., Spokane County, at State Highway 27, 3 mi (4.8 km) north of Latah.	2.18	1961-76a, 1964, 1967, 1974	3- 2-72	c4.00
12432000 Little Spokane River	Spokane River	Lat 47°46'59", long 117°31'43", in SE¼SW¼ sec.5, T.26 N., R.42 E., Spokane County, 50 ft (15 m) downstream from county road bridge, 1.1 mi (1.8 km) upstream from mouth, 5.3 mi (8.5 km) west of Dartford.	700	1903-05, 1912, 1913-14‡, 1920-21, 1923-24, 1930-32, 1947-48, 1953, 1955-58, 1960-73, 1977	5-30-78 9-20-78	626 413
		Sanpoil River basin				
Bailey Creek	Sanpoil River	Lat 48°33'48", long 119°01'58", in NE¼SW¼ sec.2, T.35 N., R.30 E., Okanogan County, Okanogan National Forest, on left bank of county road crossing 3.0 mi (4.8 km) northwest of Aeneas, and 0.8 mi (1.3 km) from the mouth.	8.04	1974-77a	6-20-74	c3.06
Bridge Creek	Do.....	Lat 48°14'25", long 118°35'49", in SE¼SW¼ sec.25, T.32 N., R.33 E., Ferry County, at road crossing 6 mi (9.7 km) above mouth and 12 mi (19.3 km) northeast of Keller.	18.4	1971-75a	8- 1-75	c47
Sanpoil River	F.D. Roosevelt Lake	Lat 48°05'04", long 118°41'25", in NW¼SW¼ sec.20, T.30 N., R.33 E., Ferry County, Colville Indian reservation on upstream side of county highway bridge, 0.4 mi (0.6 km) upstream from Jack Creek and 0.5 mi (0.8 km) north of Keller.	900	1963, 1975-76	10-21-77 12-28-77	29.3 70.8
		Nespelem River basin				
Parmenter Creek	Nespelem River	Lat 48°15'06", long 118°58'47", in SE¼SE¼ sec.24, T.32 N., R.30 E., Okanogan County, at road crossing 0.5 mi (0.8 km) upstream from mouth and 6.0 mi (9.7 km) north of Nespelem.	6.94	1974-75a	6-26-74	c0.51
		Okanogan River basin				
Olie Creek	Tonts Coulee Creek	Lat 48°50'59", long 119°43'54", in NW¼SW¼ sec.29, T.39 N., R.25 E., Okanogan County, at county road 5 mi (8.0 km) northwest of Loomis.	1.42	1961-75a	7-27-72 7-10-74	c0.12 c.09
Spectacle Lake tributary	Spectacle Lake	Lat 48°48'37", long 119°33'10", in SE¼NW¼ sec.10, T.38 N., R.26 E., Okanogan County, at county road 4 mi (6.4 km) east of Loomis.	4.59	1961-75a	7-10-75 4-28-76	c.15 c.36
12443600 Similkameen River	Okanogan River	Lat 48°56'05", long 119°26'27", in NE¼SW¼ sec.28, T.40 N., R.27 E., Okanogan County, at Twelfth Avenue bridge in Oroville.	3,590	1929-30, 1935, 1937, 1939-40, 1943-44, 1975-77	1- 5-78 3-22-78 5-16-78	527 602 6,690

* Revised, published as 12396900.
‡ Operated as continuous-record station.
a Operated as crest-stage station.
b Approximately.
c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1978

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Okanogan River basin--Continued				
Omak Creek tributary	Omak Creek	Lat 48°20'16", long 119°10'16", in NE¼ sec.28, T.33 N., R.29 E., Okanogan County, at State Highway 155, about 3.5 mi (5.6 km) southeast of Disautel.	4.12	1956-75a	5-12-71	c1.9
Omak Creek	Okanogan River	Lat 48°22'13", long 119°26'22", in SW¼SE¼ sec.9, T.33 N., R.26 E., Okanogan County, Colville Indian Reservation, upstream from dam, 0.5 mi (0.8 km) southeast of St. Mary's Mission, and 3.8 mi (6.1 km) southeast of Omak.	---	1976-77	10-11-77	2.81
Do.....	Do.....	Lat 48°22'13", long 119°26'32", in SW¼SE¼ sec.9, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 6.5 mi (10.5 km) southeast of Omak.	---	1976-77	10-11-77	2.98
					10-12-77	3.16
					11- 8-77	1.81
					12- 6-77	4.72
					1- 4-78	4.49
					2- 2-78	5.19
					2-28-78	6.08
					3-28-78	53.8
					4-27-78	92.9
Do.....	Do.....	Lat 48°21'59", long 119°26'46", in NW¼NW¼ sec.16, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 6.5 mi (10.5 km) southeast of Omak.	---	1976-77	10-12-77	2.67
					11- 8-77	2.03
					12- 6-77	4.42
					1- 4-78	4.10
					2- 2-78	5.41
					2-28-78	6.17
					3-28-78	50.6
					4-27-78	101
Do.....	Do.....	Lat 48°22'09", long 119°26'53", in SW¼SW¼ sec.9, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 6.3 mi (10.1 km) southeast of Omak.	---	1976-77	10-12-77	2.40
					11- 8-77	1.58
					12- 6-77	3.49
					1- 4-78	4.30
					2- 2-78	5.43
					2-28-78	6.13
					3-28-78	52.2
					4-27-78	92.6
Do.....	Do.....	Lat 48°22'26", long 119°27'05", in NE¼SE¼ sec.8, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 6.0 mi (9.7 km) southeast of Omak.	---	1976-77	10-12-77	1.86
					11- 8-77	1.28
					12- 6-77	4.23
					1- 4-78	4.29
					2- 2-78	4.23
					2-28-78	6.45
					3-28-78	50.2
Do.....	Do.....	Lat 48°22'38", long 119°27'12", in SE¼NE¼ sec.8, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 5.7 mi (9.2 km) southeast of Omak.	---	1976-77	10-12-77	2.00
					11- 8-77	1.27
					12- 6-77	3.15
					1- 4-78	4.10
					2- 2-78	4.02
					2-28-78	6.13
					3-28-78	51.5
					4-27-78	90.1
Do.....	Do.....	Lat 48°22'48", long 119°27'16", in NE¼NE¼ sec.8, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 250 ft (76.0 m) upstream from pump and 5.7 mi (9.2 km) southeast of Omak.	---	1976-77	10-12-77	1.54
					11- 8-77	1.29
					12- 6-77	3.67
					1- 4-78	3.67
					2- 2-78	5.28
					2-28-78	5.91
					3-28-78	54.4
					4-27-78	92.0
Do.....	Do.....	Lat 48°22'55", long 119°27'16", in NE¼NE¼ sec.8, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 75 ft (23 m) downstream from pump and 5.7 mi (9.2 km) southeast of Omak.	---	1976-77	10-12-77	1.47
					11- 8-77	1.22
					12- 6-77	3.31
					1- 4-78	3.74
					2- 2-78	3.84
					2-28-78	6.02
					3-28-78	55.6
					4-27-78	90.9
Do.....	Do.....	Lat 48°23'37", long 119°30'00", in NW¼NE¼ sec.1, T.33 N., R.26 E., Okanogan County, Colville Indian Reservation, upstream from lumber mill, 0.6 mi (1.0 km) southeast of Omak.	---	---	10-12-77	1.60
No Name Creek	Omak Lake	Lat 48°20'57", long 119°26'28", in SE¼NW¼ sec.21, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 8.0 mi (12.9 km) southeast of Omak.	---	1976-77	10-13-77	.0
					11- 8-77	.0
					12- 6-77	.0
					1- 5-78	.04
					2- 1-78	.09
					3- 1-78	.20
					3-29-78	.28
					4-28-78	1.03

a Operated as crest-stage station.
c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1978

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Okanogan River basin--Continued				
Springs East of Walton Pond	No Name Creek	Lat 48°20'26", long 119°25'46", in SE¼SE¼ sec.21, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, upstream from diversion, and 8.4 mi (13.5 km) southeast of Omak.	---	---	3-29-78	0.07
No Name Creek	Omak Lake	Lat 48°20'53", long 119°26'33", in SE¼NW¼ sec.21, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 0.15 mi (0.24 km) south of Walton's driveway and 8.15 mi (13.1 km) southeast of Omak.	---	1976-77	10-13-77 11- 9-77 12- 7-77 1- 5-78 2- 1-78 3- 1-78 3-29-78 4-28-78	.009 .02 .01 .07 .12 .23 .37 1.31
Springs East of Walton Pond	No Name Creek	Lat 48°20'26", long 119°25'48", in SE¼SE¼ sec.21, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, downstream from diversion, and 8.4 mi (13.5 km) southeast of Omak.	---	---	3-29-78	.03
No Name Creek	Omak Lake	Lat 48°20'25", long 119°26'26", in SE¼SW¼ sec.21, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 75 ft (22.9 m) downstream from diversion outlet gage, and 8.45 mi (13.6 km) southeast of Omak.	---	1976-77	10-13-77 11- 9-77 12- 7-77 1- 5-78 2- 1-78 3- 1-78 3-29-78 4-28-78	.14 .05 .06 .17 .19 .58 .67 1.45
Do.....	Do.....	Lat 48°19'51", long 119°26'04", in NW¼ SE¼ sec.28, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 9.45 mi (15.2 km) southeast of Omak.	---	1976-77	10-13-77 11- 9-77 12- 7-77 1- 5-78 2- 1-78 3- 1-78 3- 29-78 4-28-78	.06 .02 .10 .15 .17 .69 .68 1.62
Do.....	Do.....	Lat 48°19'39", long 119°26'03", in NE¼SE¼ sec.28, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation.	---	---	10-13-77 11- 8-77 12- 6-77 1- 9-78 2- 1-78 3- 1-78 3-29-78 4-28-78	0 0 0 0 .11 .39 .50 .85
Okanogan River	Columbia River	Lat 48°21'48", long 119°34'36", in SW¼NW¼ sec.16, T.33 N., R.26 E., Okanogan County, on downstream side of Oak Street (formerly U.S. Highway 97) bridge in Okanogan, 150 ft (46 m) northwest of Great Northern Railway depot, and 0.3 mi (0.5 km) upstream from Salmon Creek.	7,900	1911-25‡, 1926, 1976	2- 3-78 5-18-78	1,020 9,010
		Methow River basin				
Early Winters Creek	Methow River	Lat 48°35'55", long 120°26'31", in NE¼NE¼ sec.26, T.10 N., R.19 E., Okanogan County, Okanogan National Forest, at bridge at Early Winters Ranger Station, 0.3 mi (0.5 km) from the mouth and 1.7 mi (2.7 km) northwest of Mazama on the North Cascade Highway (state Highway 20). Note.--New bridge is at slightly different location than Mazama quad sheet indicates.	---	1975-77	3-28-78 6- 1-78	154 440
Methow River	Columbia River	Lat 48°35'23", long 120°24'13", in NE¼SE¼ sec.25, T.36 N., R.18 E., Okanogan County, Okanogan National Forest at State Highway 20 crossing at Mazama.	342	1942, 1967, 1970-71	10-22-75 1-13-76 4- 7-76 5-12-76	f54.0 f109 f211 f2,760
12447374 Methow River	Do.....	Lat 48°35'23", long 120°24'20", in NE¼SE¼ sec.25, T.36 N., R.19 E., Okanogan County, Okanogan National Forest, at State Highway 20 bridge, 0.2 mi (0.3 km) southwest of Mazama at river mile 65.3 (105.1 km).	363	1942, 1967, 1970-72, 1975-77	3-28-78 6- 1-78	528 1,830
12447385 Methow River	Do.....	Lat 48°32'40", long 120°19'20", in SW¼SE¼ sec.10, T.35 N., R.20 E., Okanogan County, Okanogan National Forest at Weaman bridge on State Highway 20, 5 mi (8 km) southeast of Mazama, 7.6 mi (12.2 km) downstream from Early Winters Creek and at mile 59.7 (96.1 km).	403	1944, 1975-77	1-17-78	2.1
Chewack River	Methow River	Lat 48°33'53", long 120°10'35", in SE¼NW¼ sec.2, T.35 N., R.21 E., Okanogan County, at road crossing, 0.9 mi (1.4 km) downstream from Boulder Creek and 5.4 mi (8.7 km) north of Winthrop.	466	1942	1- 1-78	1,510

‡ Operated as continuous-record station.
b Approximately
f Published in 1976 water year at a site 3.9 mi (6.3 km) upstream erroneously.

Discharge measurements made at miscellaneous sites during water year 1978

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Methow River basin--Continued				
Methow River	Columbia River	Lat 48°28'26", long 120°10'35", in NE¼SW¼ sec.2, T.34 N., R.21 E., Okanogan County, at State Highway road crossing, 0.5 mi (0.8 km) downstream from Chewack River, at south end of Winthrop.	1,007	----	6- 1-78	3,980
Do.....	Do.....	Lat 48°20'47", long 120°04'54", in SE¼NE¼ sec.21, T.33 N., R.22 E., Okanogan County, on left bank, 1.3 mi (2.1 km) southeast of Twisp city limits, 2.2 mi (3.5 km) upstream from Beaver Creek and 3.0 mi (4.8 km) downstream from Twisp River.	---	1976	3-28-78 5-31-78	1,570 3,920
		Entiat River basin				
12452990 Entiat River	Columbia River	Lat 47°39'48", long 120°14'58", in NW¼SE¼ sec.18, T.25 N., R.21 E., Chelan County, at bridge 1.2 mi (1.9 km) west of Entiat High School and at river mile 1.5 (2.4 km).	419	1971-72, 1975-77	2-15-78 4-12-78	156 734
		Wenatchee River basin				
Wenatchee River	Columbia River	Lat 47°40'34", long 120°43'58", in NE¼SW¼ sec.9, T.25 N., R.17 E., Chelan County, Wenatchee National Forest, at U.S. Highway crossing and Tumwater campground, 0.4 mi (0.6 km) downstream from mouth of Chiwaukum Creek, 4.1 mi (6.6 km) south of Winton, and at mile 35.5 (57.1 km).	---	---	11-29-77 2-14-78 4-11-78 6- 6-78	4,820 884 3,610 13,800
Do.....	Do.....	Lat 47°34'38", long 120°40'26", in SW¼NE¼ sec.14, T.24 N., R.17 E., Chelan County, at Icicle Creek road bridge 0.8 mi (1.3 km) upstream from Icicle Creek, and 0.9 mi (1.4 km) south of Leavenworth.	---	---	10- 8-76 12-11-76 1-27-77 3-30-77 2-17-78 4-11-78	c663 c6,480 c2,880 c1,170 945 4,300
Grindstone Creek	Icicle Creek	Lat 47°36'43", long 120°56'32", in NW¼NW¼ sec.2, T.24 N., R.15 E., Chelan County, Wenatchee National Forest, at mouth, and 13.3 mi (21.4 km) west of Leavenworth.	.94	1975-76	10- 7-77	.03
East Fork Mission Creek	Mission Creek	Lat 47°22'51", long 120°29'16", in NE¼SW¼ sec.20, T.22 N., R.19 E., Chelan County, Wenatchee National Forest, at U.S. Forest Service road crossing, 9.7 mi (15.6 km) south of Cashmere.	15.4	1955-77a, 1955-61, 1963, 1965-67	6- 6-74	c11.4
East Branch Mission Creek tributary	East Branch Mission Creek	Lat 47°22'54", long 120°29'20", in NE¼SW¼ sec.20, T.22 N., R.19 E., Chelan County, Wenatchee National Forest, at U.S. Forest Service road crossing, 9.7 mi (15.6 km) south of Cashmere.	2.49	1955-74a, 1955-60, 1966-67, 1975-77	6- 6-74	c.18
		Douglas Creek basin				
Rattlesnake Springs	Douglas Creek	Lat 47°27'03", long 119°45'29", in NW¼NE¼ sec.36, T.23 N., R.24 E., Douglas County, at Spring, 7.8 mi (12.6 km) northeast of Palisades.	---	---	6- 6-78 7-26-78 8- 7-78 9-26-78	0.16 .07 .04 .07
		Crab Creek basin				
Main Canal		Lat 47°31'58", long 119°17'17", in NE¼SW¼ sec.34, T.24 N., R.28 E., Grant County, at county road crossing, 5.0 mi (8.0 km) south of Coulee City.	---	---	8- 7-78 8- 7-78	3,650 3,660
East Low Canal		Lat 47°24'13", long 119°21'33", in SW¼SW¼ sec.7, T.22 N., R.28 E., Grant County, at gaging station, 4.3 mi (6.9 km) west of Stratford.	---	---	9- 8-78 9- 8-78	1,600 1,580
West Canal		Lat 47°25'16", long 119°22'26", in SE¼NW¼ sec.12, T.22 N., R.27 E., Grant County, at gaging station, 6.9 mi (11.1 km) west of Stratford.	---	---	9- 8-78 9- 8-78	1,920 1,950
		Yakima River basin				
12491700 House Creek	Tieton River	Lat 46°40'33", long 121°04'49", in NE¼ sec.28, T.14 N., R.14 E., Yakima County, at State Highway 14, 0.1 mi (0.2 km) west of Tieton Ranger Station and 2.5 mi (4.0 km) east of Rimrock.	3.91	1955-76a, 1967, 1969, 1971, 1976-77	11- 2-77 6-27-78	0.09 e.9
12511520 Yakima River	Columbia River	Lat 46°22'23", long 119°24'31", in NE¼NE¼ sec.10, T.10 N., R.27 E., Benton County, on right bank, 0.55 mi (0.88 km) downstream from Horn Rapids Dam, 6.3 mi (10.2 km) northwest of Richland and at mile 17.5 (28.2 km).	---	---	5-18-78 7-28-78	3,400 918

a Operated as a crest-stage gage.
c Not previously published.
e Estimated.

Discharge measurements made at miscellaneous sites during water year 1978

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Asotin Creek basin				
Pintler Creek	George Creek	Lat 46°08'03", long 117°09'56", in NW¼NW¼ sec.34, T.8 N., R.45 E., Asotin County, at county road crossing 1.7 mi (2.7 km) west of Anatone.	0.86	1971-77a	4-24-73 4- 2-74 5-21-74	c0.20 c6.37 c.82
		Critchfield Draw basin				
Critchfield Draw	Snake River	Lat 46°22'28", long 117°05'07", in SW¼NE¼ sec.6, T.10 N., R.46 E., Asotin County, at county road, 3.0 mi (4.8 km) southwest of Clarkston.	1.8	1959-75‡	4- 2-74	c2.8
		Palouse River basin				
13349309 Palouse River tributary	Palouse River	Lat 46°57'37", long 117°48'12", in SW¼SW¼ sec.17, T.17 N., R.40 E., Whitman County, at county road 1 mi (1.6 km) north of Winona.	2.94	1967-77a	8- 3-72	c0
13350500 Union Flat Creek	Do.....	Lat 46°48'37", long 117°25'52", in NW¼SW¼ sec.8, T.15 N., R.43 E., Whitman County, 20 ft (6 m) upstream from county road bridge 6.0 mi (9.7 km) southwest of Colfax and at mile 32.3 (52.0 km).	189	1953-71‡, 1972-77a	8-29-72	c3.84
Hardman Draw tributary	Hardman Draw	Lat 47°18'36", long 117°23'14", in NW¼SW¼ sec.16, T.21 N., R.43 E., Spokane County, at U.S. Highway 195, 0.7 mi (1.1 km) south of Plaza.	1.64	1955-74a, 1963-64	1-18-72	c.04
Cow Creek	Palouse River	Lat 46°59'05", long 118°13'01", in NE¼SE¼ sec.1, T.17 N., R.36 E., Adams County, below springs, 0.8 mi (1.3 km) downstream from T.H. Harder Ranch, 2.5 mi (4.0 km) southwest of Marengo.	---	---	12- 1-65	c7.32
T. H. Harder Spring	Cow Creek	Lat 47°00'00", long 118°13'08", in NE¼ sec.1, T.17 N., R.36 E., Adams County, 0.4 mi (0.6 km) southwest of T. H. Harder Ranch, and 2.3 mi (3.7 km) southwest of Marengo.	---	---	12- 1-65	c5.64
Cow Creek	Palouse River	Lat 47°00'12", long 118°12'52", in SE¼SE¼ sec.36, T.18 N., R.36 E., Adams County, above springs at T.H. Harder Ranch, 2.0 mi (3.2 km) southwest of Marengo.	---	---	12- 1-65	c1.67
		Walla Walla River basin				
14017600 Touchet River	Walla Walla River	Lat 46°02'29", long 118°40'59", in NE¼NE¼ sec.33, T.7 N., R.33 E., Walla Walla County, at U.S. Highway 410 crossing, 0.5 mi (0.8 km) west of Touchet, 0.6 mi (1.0 km) above mouth.	747	1962-65, 1972-75, 1977	10-07-77 11-30-77 1-27-78 3-29-78 5-23-78 7-27-78 9-22-78	26.8 180 271 262 147 2.32 38.2
		Klickitat River basin				
14112000 Little Klickitat River	Klickitat River	Lat 45°50'40", long 120°47'42", in NE¼SW¼ sec.10, T.4 N., R.16 E., Klickitat County, 400 ft (122 m) upstream from State Highway 97 bridge, and 2.1 mi (3.4 km) northeast of Goldendale.	83.5	1911-12‡, 1947-51‡, 1958-70‡, 1971-77a, 1973, 1975-77	6- 5-78	e15

‡ Operated as a continuous-record station.
a Operated as a crest-stage gage.
c Not previously published.
e Estimated.

Samples collected at sites other than gaging stations and partial-record stations to give better areal coverage in a river basin. Such sites are referred to as miscellaneous sites.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)
12419495 - SPOKANE R. AT STATELINE BR. NR. GREENACRES (LAT 47 41 55 LONG 117 02 37)									
MAY , 1978 11...	0820	51	9.2	.7	.00	.00	.03	.00	.00
12420300 - SPOKANE R AT HARVARD RD BR NR OTIS ORCHARDS, WA (LAT 47 41 00 LONG 117 06 00.04)									
MAY , 1978 11...	0900	50	9.1	.6	.00	.00	.03	--	--
12420500 - SPOKANE RIVER AT GREENACRES WASH (LAT 47 40 45 LONG 117 09 25)									
MAY , 1978 11...	0910	50	9.0	.6	.00	.00	.04	.00	.00
12420800 - SPOKANE R AT SULLIVAN RD BR NR TRENTWOOD, WASH (LAT 47 40 30 LONG 117 11 30.04)									
MAY , 1978 11...	0925	52	9.2	.6	.01	.00	.03	.00	.00
12421200 - SPOKANE R. AT TRENT BRIDGE AT TRENTWOOD (LAT 47 41 32 LONG 117 14 03)									
MAY , 1978 11...	0950	55	9.6	.7	.01	.00	.04	.00	.00

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)
12421700 - SPOKANE RIVER AT ARGONNE RD BR AT SPOKANE, WASH (LAT 47 41 30 LONG 117 17 00.04)									
MAY , 1978 11...	1010	56	9.6	.7	.01	.00	.04	.00	.00
12422000 - SPOKANE RIVER BLW GREEN ST AT SPOKANE WASH (LAT 47 40 40 LONG 117 22 20)									
MAY , 1978 11...	1035	61	9.8	.8	.03	.00	.32	.01	.03
12422010 - SPOKANE R. AT MISSION AVE. AT SPOKANE (LAT 47 40 19 LONG 117 23 12)									
MAY , 1978 11...	1100	59	9.8	.7	.02	.00	.04	.01	.03
12422100 - SPOKANE RIVER AT TRENT AVE BR AT SPOKANE, WASH (LAT 47 39 30 LONG 117 26 00.04)									
MAY , 1978 11...	1115	60	9.8	.8	.03	.00	.13	.00	.00
12422500 - SPOKANE RIVER AT SPOKANE, WASH. (LAT 47 39 34 LONG 117 26 53)									
MAY , 1978 11...	1320	60	10.6	.7	.02	.00	.03	.00	.00

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)
12424100 - SPOKANE R. AT FT. WRIGHT BR. AT SPOKANE (LAT 47 48 50 LONG 117 27 07)									
MAY , 1978									
11...	1405	63	10.6	.7	.02	.00	.02	.00	.00
12424500 - SPOKANE R AT 7 MILE BRIDGE NR SPOKANE WASH (LAT 47 44 25 LONG 117 31 18)									
MAY , 1978									
11...	1450	71	10.8	1.2	.07	.01	.08	.00	.00
12430200 - LITTLE SPOKANE RIVER AT BUCKEYE, WASH (LAT 47 50 34 LONG 117 22 26.01)									
MAY , 1978									
08...	1320	164	15.6	1.2	.32	.01	.04	.02	.06
12430250 - LITTLE SPOKANE RIVER NEAR BUCKEYE, WASH (LAT 47 49 26 LONG 117 22 24.01)									
MAY , 1978									
08...	1330	163	15.2	1.3	.32	.01	.04	.02	.06
12430300 - LITTLE SPOKANE R ABV DEADMAN CR NR DARTFORD, WA (LAT 47 48 19 LONG 117 22 40.01)									
MAY , 1978									
08...	1345	170	15.1	1.4	.33	.01	.06	.02	.06
DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)
12430320 - LITTLE SPOKANE R AT L SPOK DR NR DARTFORD, WA (LAT 47 47 54 LONG 117 22 53)									
MAY , 1978									
08...	1355	166	15.1	1.5	.33	.01	.10	.02	.06
12430650 - LITTLE SPOKANE R AT GREENLEAF DR NR DARTFORD, WA (LAT 47 29 58 LONG 117 23 52)									
MAY , 1978									
08...	1405	163	15.0	1.9	.32	.01	.06	.02	.06
12431000 - LITTLE SPOKANE R. AT DARTFORD (LAT 47 47 05 LONG 117 24 12)									
MAY , 1978									
08...	1415	--	15.0	2.5	.40	.01	.06	.02	.06
12431010 - LITTLE SPOKANE R AT DARTFORD DR NR DARTFORD, WA (LAT 47 47 05 LONG 117 24 15)									
MAY , 1978									
08...	1450	174	15.6	2.7	.37	.01	.07	.04	.12
12431200 - LITTLE SPOKANE RLW COUNTRY CLUB NR DARTFORD, WA (LAT 47 46 50 LONG 117 29 45.01)									
MAY , 1978									
09...	1100	223	13.3	2.9	.70	.01	.05	.02	.06
12431500 - LITTLE SPOKANE R NR DARTFORD WASH (LAT 47 46 50 LONG 117 29 45)									
MAY , 1978									
09...	1000	224	13.2	3.0	.81	.01	.07	.02	.06

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
12457950 - EIGHT MILE LAKE NEAR LEAVENWORTH, WASH (LAT 47 31 15 LONG 120 51 28)							
AUG , 1978							
10...	1800	3.0	20	7.1	16.0	8.2	--
10...	1805	66	24	7.0	5.4	9.0	--
12457952 - LITTLE EIGHT MILE LAKE NEAR LEAVENWORTH, WASH (LAT 47 31 24 LONG 120 50 58)							
AUG , 1978							
11...	1300	8.0	25	7.1	12.2	8.6	.02
11...	1305	3.0	21	7.2	13.2	8.6	.03
12457957 - HORSESHOE LAKE NEAR LEAVENWORTH, WASH (LAT 47 29 40 LONG 120 54 14)							
AUG , 1978							
08...	1300	16	6	6.6	16.5	8.4	--
08...	1305	3.0	6	6.4	17.2	7.6	--

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)
12457950 - EIGHT MILE LAKE NEAR LEAVENWORTH, WASH (LAT 47 31 15 LONG 120 51 28)						
AUG , 1978						
10...	.02	.08	.10	--	--	.01
10...	.02	.10	.12	--	--	.01
12457952 - LITTLE EIGHT MILE LAKE NEAR LEAVENWORTH, WASH (LAT 47 31 24 LONG 120 50 58)						
AUG , 1978						
11...	.01	.05	.06	.08	.40	.00
11...	.01	.05	.06	.09	.40	.00
12457957 - HORSESHOE LAKE NEAR LEAVENWORTH, WASH (LAT 47 29 40 LONG 120 54 14)						
AUG , 1978						
08...	.03	.12	.15	--	--	.02
08...	.06	.17	.23	--	--	.02

12457959 - LAKE STUART NEAR LEAVENWORTH, WASH (LAT 47 29 44 LONG 120 52 17)

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
AUG , 1978										
07...	1800	3.0	11	6.3	18.0	7.3	--	--	--	--
07...	1805	33	14	6.8	8.2	9.1	5	0	1.6	.2

DATE	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
AUG , 1978										
07...	--	--	--	--	--	--	--	--	--	--
07...	.4	14	.1	.4	5	2.0	.4	.0	3.0	10

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

12457959 - LAKE STUART NEAR LEAVENWORTH, WASH--Continued

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)
AUG , 1978									
07...	--	--	.02	.03	.04	.07	.09	.40	.01
07...	11	.01	.02	.03	.07	.10	.12	.50	.01

12457962 - COLECHUCK LAKE NEAR LEAVENWORTH, WASH (LAT 47 29 41 LONG 120 50 05)

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
AUG , 1978									
09...	1500	3.0	19	7.3	17.2	7.1	--	--	--
09...	1505	197	25	7.2	3.8	4.6	9	0	2.9

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
AUG , 1978									
09...	--	--	--	--	--	--	--	--	--
09...	.4	2.0	30	.3	1.1	11	1.4	1.4	.0

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
AUG , 1978								
09...	--	--	--	--	.02	.06	.08	.01
09...	5.1	15	21	.02	.04	.10	.14	.02

12457980 - SHIELD LAKE NEAR LEAVENWORTH, WASH (LAT 47 29 53 LONG 120 46 40)

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
SEP , 1978									
07...	1700	3.0	6	6.8	8.0	9.6	--	--	--
07...	1705	49	6	6.6	8.1	8.0	4	2	1.1

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
SEP , 1978									
07...	--	--	--	--	--	--	--	--	--
07...	.2	.3	15	.1	.2	2	1.2	.3	.0

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
SEP , 1978								
07...	--	--	--	--	.01	.07	.08	.00
07...	2.6	7	7	.01	.01	.06	.07	.00

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
12457982 - EARLE LAKE NEAR LEAVENWORTH, WASH (LAT 47 30 25 LONG 120 46 04)							
SEP , 1978							
07...	1400	3.0	7	6.4	8.2	9.2	.00
07...	1405	82	7	6.0	5.8	6.2	.00
12457984 - MESA LAKE NEAR LEAVENWORTH, WASH (LAT 47 30 31 LONG 120 45 49)							
SEP , 1978							
07...	1130	3.0	6	6.4	8.5	8.4	--
07...	1135	15	8	6.2	8.4	8.5	--

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)
12457982 - EARLE LAKE NEAR LEAVENWORTH, WASH (LAT 47 30 25 LONG 120 46 04)						
SEP , 1978						
07...	.02	.10	.12	.12	.50	.00
07...	.02	.08	.10	.10	.40	.01
12457984 - MESA LAKE NEAR LEAVENWORTH, WASH (LAT 47 30 31 LONG 120 45 49)						
SEP , 1978						
07...	.01	.07	.08	--	--	.00
07...	.01	.25	.26	--	--	.02

12458020 - ENCHANTMENT LAKE NO. 9 NEAR LEAVENWORTH, WASH (LAT 47 28 50 LONG 120 49 02)

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
SEP , 1978								
08...	1500	3.0	10	5.5	10.5	--	--	--
08...	1505	39	11	5.5	9.6	4	0	1.0

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
SEP , 1978									
08...	--	--	--	--	--	--	--	--	--
08...	.3	.7	26	.2	.5	4	1.0	.5	.0

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)
SEP , 1978								
08...	--	--	--	--	.01	.07	.08	.01
08...	4.0	11	10	.02	.01	.07	.08	.01

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
12458025 - ENCHANTMENT LAKE NO. 8 NEAR LEAVENWORTH, WASH (LAT 47 28 43 LONG 120 48 54)							
SEP , 1978							
05...	1400	1.0	7	--	5.5	10.6	--
08...	1405	10	8	--	5.5	10.6	--

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS NO3)	PHOS-PHORUS, TOTAL (MG/L AS P)
12458025 - ENCHANTMENT LAKE NO. 8 NEAR LEAVENWORTH, WASH (LAT 47 28 43 LONG 120 48 54)						
SEP , 1978						
08...	.01	.05	.06	--	--	.00
08...	.01	.12	.13	--	--	.01

12458030 - ISOLATION LAKE NEAR LEAVENWORTH, WASH (LAT 47 28 39 LONG 120 48 55)

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
SEP , 1978								
08...	1100	3.0	5	3.2	11.1	--	--	--
08...	1105	49	12	3.0	10.7	4	2	1.0

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
SEP , 1978									
08...	--	--	--	--	--	--	--	--	--
08...	.3	.4	17	.1	.3	2	.7	.5	.0

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
SEP , 1978								
08...	--	--	--	--	.02	.08	.10	.01
08...	1.3	7	6	.01	.01	.10	.11	.01

DATE	TIME	SAMP-LING DEPTH (FT)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
12458040 - ENCHANTMENT LAKE NO. 7 NEAR LEAVENWORTH, WASH (LAT 47 28 37 LONG 120 48 42)							
SEP , 1978							
10...	1130	3.0	4	--	2.0	9.7	--
10...	1135	14	4	--	2.1	9.8	--
12458045 - ENCHANTMENT LAKE NO. 6 NEAR LEAVENWORTH, WASH (LAT 47 28 41 LONG 120 48 41)							
SEP , 1978							
10...	1000	3.0	4	--	2.0	9.6	--
10...	1005	8.0	4	--	2.0	9.7	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

12458040 - ENCHANTMENT LAKE NO. 7 NEAR LEAVENWORTH, WASH (LAT 47 28 37 LONG 120 48 42) Cont.

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)
SEP , 1978						
10...	.02	.05	.07	--	--	.01
10...	.02	.07	.09	--	--	.01

12458045 - ENCHANTMENT LAKE NO. 6 NEAR LEAVENWORTH, WASH (LAT 47 28 41 LONG 120 48 41) Cont.

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)
SEP , 1978						
10...	.01	.09	.10	--	--	.01
10...	.01	.07	.08	--	--	.01

12458055 - INSPIRATION LAKE NEAR LEAVENWORTH, WASH (LAT 47 28 52 LONG 120 47 55)

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
SEP , 1978								
10...	1300	3.0	5	5.2	9.3	--	--	--
10...	1305	75	5	5.0	5.5	4	2	1.0

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
SEP , 1978									
10...	--	--	--	--	--	--	--	--	--
10...	.3	.3	14	.1	.2	2	.6	.3	.0

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)
SEP , 1978								
10...	--	--	--	--	.02	.12	.14	.00
10...	1.5	6	5	.01	.02	.10	.12	.01

12458065 - PERFECTION LAKE NEAR LEAVENWORTH, WASH (LAT 47 28 44 LONG 120 47 38)

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
SEP , 1978							
10...	1700	3.0	5	--	5.8	9.8	.00
10...	1705	98	5	--	5.6	9.6	.01

12458065 - PERFECTION LAKE NEAR LEAVENWORTH, WASH (LAT 47 28 44 LONG 120 47 38)

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)
SEP , 1978						
10...	.01	.09	.10	.10	.40	.00
10...	.05	.39	.44	.45	2.0	.12

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
12458075 - ENCHANTMENT LAKE NO. 3 NEAR LEAVENWORTH, WASH (LAT 47 28 49 LONG 120 46 59)							
SEP , 1978							
11...	1130	3.0	5	--	6.0	9.3	--
11...	1135	59	5	--	5.3	9.6	--
12458080 - ENCHANTMENT LAKE NO. 2 NEAR LEAVENWORTH, WASH (LAT 47 28 55 LONG 120 46 48)							
SEP , 1978							
11...	1300	3.0	5	--	6.5	9.3	--
11...	1305	121	5	--	4.5	8.3	--

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)
12458075 - ENCHANTMENT LAKE NO. 3 NEAR LEAVENWORTH, WASH (LAT 47 28 49 LONG 120 46 59)						
SEP , 1978						
11...	.02	.13	.15	--	--	.01
11...	.01	.15	.16	--	--	.01
12458080 - ENCHANTMENT LAKE NO. 2 NEAR LEAVENWORTH, WASH (LAT 47 28 55 LONG 120 46 48)						
SEP , 1978						
11...	.03	.13	.16	--	--	.01
11...	.02	.06	.08	--	--	.01

12458090 - TEMPLE LAKE NEAR LEAVENWORTH, WASH (LAT 47 29 04 LONG 120 46 34)

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
SEP , 1978										
11...	1330	3.0	5	6.2	9.0	--	--	--	--	--
11...	1335	11	5	6.0	9.1	2	0	.5	.3	.3

DATE	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
SEP , 1978									
11...	--	--	--	--	--	--	--	--	--
11...	19	.1	.2	2	1.2	.3	.0	2.2	5

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)
SEP , 1978									
11...	--	--	.01	.02	.17	.19	.20	.90	.01
11...	6	.01	.01	.02	.16	.18	.19	.80	.00

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
12458097 - UPPER SNOW LAKE NEAR LEAVENWORTH, WASH (LAT 47 29 01 LONG 120 44 59)							
SEP , 1978							
12...	1030	3.0	8	--	10.1	8.8	.00
12...	1035	16	12	--	3.9	8.8	.01

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)
12458097 - UPPER SNOW LAKE NEAR LEAVENWORTH, WASH (LAT 47 29 01 LONG 120 44 59)						
SEP , 1978						
12...	.02	.08	.10	.10	.40	.00
12...	.01	.09	.10	.11	.50	.01

12458100 - LOWER SNOW LAKE NEAR LEAVENWORTH, WASH (LAT 47 29 23 LONG 120 44 02)

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
SEP , 1978										
12...	1230	3.0	11	10.0	8.6	--	--	--	--	--
12...	1235	30	7	9.5	8.5	5	2	1.5	.2	.5

DATE	SODIUM, PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
SEP , 1978									
12...	--	--	--	--	--	--	--	--	--
12...	18	.1	.2	3	.5	.2	.0	2.9	4

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)
SEP , 1978									
12...	--	--	.00	.01	.09	.10	.10	.40	.00
12...	8	.01	.00	.01	.13	.14	.14	.60	.00

DATE	TIME	SAMPLING DEPTH (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)
12458120 - NADA LAKE NEAR LEAVENWORTH, WASH (LAT 47 29 50 LONG 120 44 01)							
SEP , 1978							
12...	1500	3.0	14	--	11.4	8.5	.00
12...	1505	66	27	--	5.0	.2	.01
12459800 - CRYSTAL LAKE NEAR LEAVENWORTH, WASH (LAT 47 28 26 LONG 120 47 58)							
SEP , 1978							
10...	1500	3.0	5	--	5.5	8.8	.00
10...	1505	48	4	--	5.3	8.6	.00

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)
12458120 - NADA LAKE NEAR LEAVENWORTH, WASH (LAT 47 29 50 LONG 120 44 01) Cont.						
SEP , 1978						
12...	.01	.11	.12	.12	.50	.00
12...	.20	.14	.34	.35	1.5	.02
12459000 - CRYSTAL LAKE NEAR LEAVENWORTH, WASH (LAT 47 28 26 LONG 120 47 58) Cont.						
SEP , 1978						
10...	.02	.10	.12	.12	.50	.01
10...	.01	.11	.12	.12	.50	.01

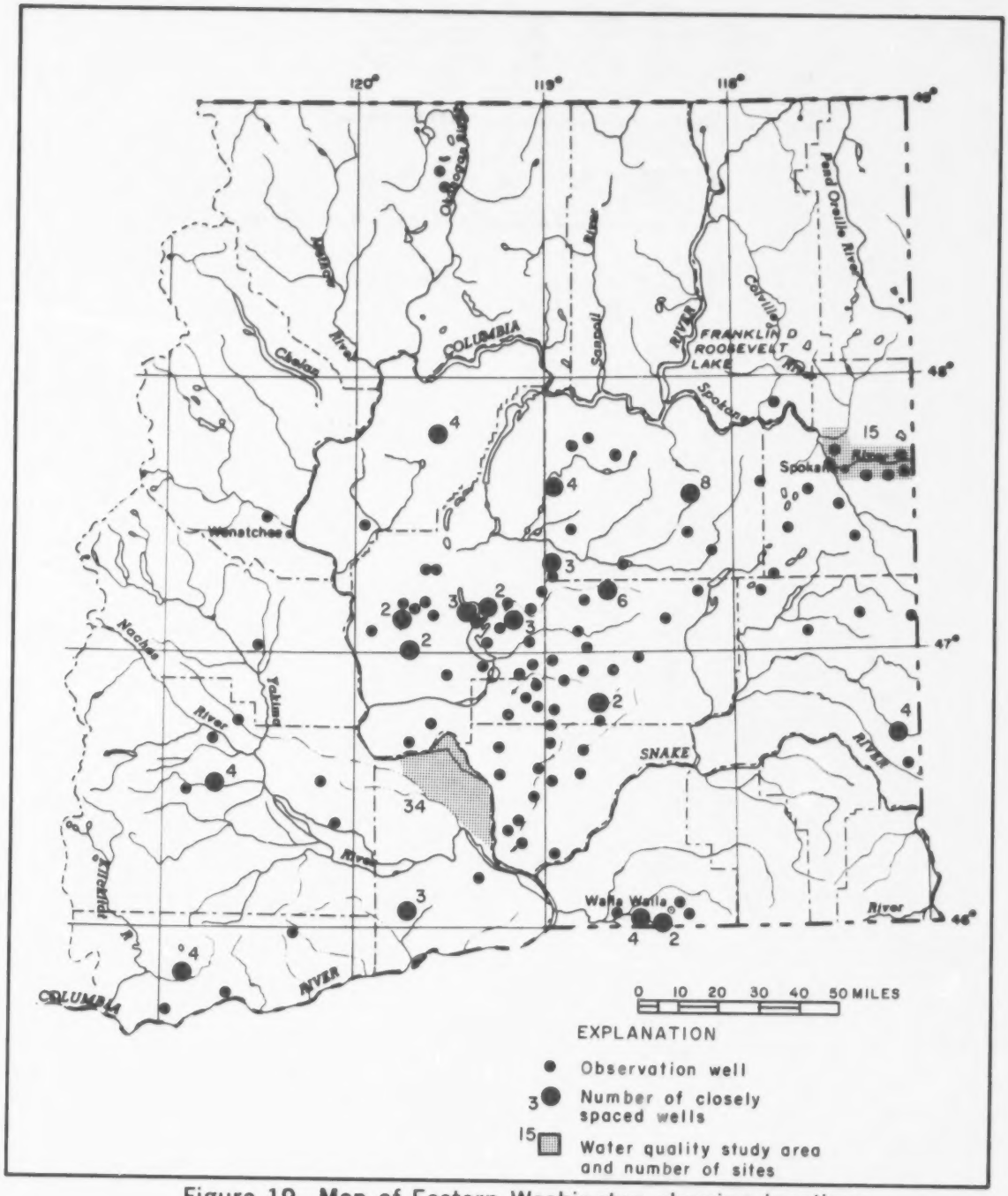

Figure 19. Map of Eastern Washington showing locations of ground-water level observations.

ADAMS COUNTY

464413118585601. Local number, 15/31-31N1.
LOCATION.--Lat 46°44'13", long 118°58'56", Hydrologic Unit 17020016.
Owner: Burl Egbert.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 280 ft (85.3 m), cased to 80 ft (24.4 m).
DATUM.--Land-surface datum is 1,154 ft (351.7 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 160.0 ft (48.77 m) below land-surface datum, Sept. 29, 1976; lowest measured, 177.8 ft (54.19 m) below land-surface datum, May 23, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 23, 1977	173.6	Mar. 30, 1978	177.4	Aug. 1, 1978	177.4	Sept. 27, 1978	174.9
Jan. 23, 1978	175.0	May 23,	177.8				

464603119085201 Local number, 15/29-26C1.
LOCATION.--Lat 46°46'03", long 119°08'52", Hydrologic Unit 17020016, at Othello.
Owner: Brick Patterson.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 257 ft (78.3 m), cased to 150 ft (45.7 m).
DATUM.--Land-surface datum about 1,030 ft (314 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--September 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 96.71 ft (29.477 m) below land-surface datum, Dec. 16, 1975; lowest measured, 197.91 ft (60.323 m) below land-surface datum, Apr. 2, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	158.2B	Feb. 16, 1978	110.1	June 7, 1978	110.76B	July 24, 1978	159.0
Dec. 8	109.8	Apr. 12	196.3B				

464740118444001. Local Number 15/32-13D1.
LOCATION.--Lat 46°47'40", long 118°44'40", Hydrologic Unit 17020016.
Owner: State of Washington, Department of Highways.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 12 in (300 mm), depth 602 ft (183.5 m), cased to 63 ft (19.2 m).
DATUM.--Land-surface datum about 1,216 ft (370.6 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--June 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 170.12 ft (51.853 m) below land-surface datum, Nov. 25, 1962; lowest measured, 197.4 ft (60.17 m) below land-surface datum, Apr. 12, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 8, 1977	193.2	Feb. 16, 1978	196.7	Apr. 12, 1978	197.4A		

465100118435301 Local number, 16/32-25A1.
LOCATION.--Lat 46°51'00", long 118°43'53", Hydrologic Unit 17020016.
Owner: D. E. Phillips.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in (400 mm), depth 812 ft (247.5 m), cased to 82 ft (25.0 m).
DATUM.--Land-surface datum is 1,457 ft (444.1 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 312.16 ft (95.146 m) below land-surface datum, Sept. 3, 1974; lowest measured, 493 ft (150.3 m) below land-surface datum, July 24, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	495.A	Feb. 16, 1978	409.	June 8, 1978	486.A	July 24, 1978	493.A
Dec. 8	420.	Apr. 12	428.B				

465100119001502 Local number, 16/30-26A2.
LOCATION.--Lat46°51'00", long 119°00'15", Hydrologic Unit 17020016.
Owner: G.W. Kliphardt.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 600 ft (183 m).
DATUM.--Land-surface datum is 1,359 ft (414.2 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 268.71 ft (81.903 m) below land-surface datum, Apr. 22, 1975; lowest measured, 482 ft (146.9 m) below land-surface datum, June 13, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	399.	Apr. 12, 1978	350.B	June 8, 1978	475.A	July 24, 1978	466.
Dec. 8	392.						

A Well being pumped.
B Well recently pumped.

ADAMS COUNTY--Continued

465149119062801 Local number, 16/30-19E1.
LOCATION.--Lat 46°51'49", long 119°06'28", Hydrologic Unit 17020016.
Owner: H. F. Berg.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 487 ft (148.4 m).
DATUM.--Land-surface datum is 1,160 ft (354 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--May 1958, March 1963, March 1968, April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.31 ft (14.725 m) below land-surface datum, Dec. 3, 1974; lowest measured, 189.90 ft (57.882 m) below land-surface datum, May 12, 1958.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	48.54	Feb. 16, 1978	49.49	June 8, 1978	51.48	July 24, 1978	50.00
Dec. 8	48.25	Apr. 12	51.02				

465250118450001 Local number, 16/32-14A1.
LOCATION.--Lat 46°52'50", long 118°45'00", Hydrologic Unit 17020016.
Owner: D. E. Phillips.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in (400 mm), depth 765 ft (233.2 m), cased to 67 ft (20.4 m).
DATUM.--Land-surface datum is 1,464 ft (446.2 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Pump and columns removed prior to measurement on Jan. 25, 1977.
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 275.4 ft (83.94 m) below land-surface datum, Feb. 7, 1978; lowest measured, 451.50 ft (137.617 m) below land-surface datum, Aug. 27, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	364.	Dec. 8, 1977	289.71	Feb. 7, 1978	275.4		

465355119005401 Local number 16/30-2P1.
LOCATION.--Lat 46°53'55", long 119°00'54", Hydrologic Unit 17020015.
Owner: Clarence Kisler.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 590 ft (180 m).
DATUM.--Land-surface datum is 1,391 ft (424.0 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--March 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 245.88 ft (74.944 m) below land-surface datum, Apr. 2, 1976; lowest measured, 251.90 ft (76.78 m) below land-surface datum, Oct. 17, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	251.90	Dec. 8, 1977	251.12	Feb. 16, 1978	250.44		

465526118543401 Local number, 17/31-34C1.
LOCATION.--Lat 46°55'26", long 118°54'34", Hydrologic Unit 17020015.
Owner: Erma Wells.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled stock water-table well, diameter 6 in (150 mm), depth 315 ft (96.0 m).
DATUM.--Land-surface datum is 1,413 ft (430.7 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--January 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 153.91 ft (46.912 m) below land-surface datum, Feb. 18, 1975; lowest measured, 310.40 ft (94.610 m) below land-surface datum, Jan. 21, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 8, 1977	295.2						

465700118510001. Local number, 17/32-19E1.
LOCATION.--Lat 46°57'00", long 118°51'00", Hydrologic Unit 17020015, at Roxboro.
Owner The Milwaukee Road.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 258 ft (78.6 m).
DATUM.--Land-surface datum about 1,260 ft (384 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--June 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 104.96 ft (31.992 m) below land-surface datum, Jan. 29, 1963; lowest measured, 206 ft (62.79 m) below land-surface datum, July 24, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	195.5	Feb. 16, 1978	187.5	June 8, 1978	205.48	July 24, 1978	206.00
Dec. 8	194.0	Apr. 12	189.8				

ADAMS COUNTY--Continued

465730118410001. Local number, 17/33-17R1.
LOCATION.--46°57'30", 118°41'00", Hydrologic unit, 17020015.
Owner: D. E. Phillips.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 10 in (250 mm), depth 184 ft (56.1 m), cased to 80 ft (24.4 m).
DATUM.--Land-surface datum about 1,310 ft (399.3 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Pump installed December 1974.
PERIOD OF RECORD.--April 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.60 ft (9.327 m) below land-surface datum, Dec. 5, 197 lowest measured, 47.32 ft (14.423 m) below land-surface datum, Jan. 29, 1965.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	35.39	Feb. 16, 1978	34.40	June 8, 1978	39.00	July 24, 1978	34.76
Dec. 8	33.94	Apr. 12	37.45				

465824118354903. Local number 17/34-7N1.
LOCATION.--Lat 46°58'24", long 118°35'49", Hydrologic Unit 17020015.
Owner: City of Lind.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 16 to 12 in (400 to 300 m), depth 686 ft (209.1 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum about 1,404 ft (427.9 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--June 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 105.60 ft (32.187 m) below land-surface datum, Apr. 7, 1969; lowest measured, 140.62 ft (42.86 m) below land-surface datum, Oct. 17, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	140.62	Feb. 16, 1978	137.58	June 8, 1978	138.65	July 24, 1978	139.98
Dec. 8	139.28	Apr. 12	136.52				

465910118581001. Local number, 17/31-6P1.
LOCATION.--Lat 46°59'10", long 118°58'10", Hydrologic Unit 17020015, at Lind.
Owner: D. E. Phillips.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 129 ft (39.3 m).
DATUM.--Land-surface datum about 1,217 ft (370.9 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--May 1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.11 ft (8.568 m) below land-surface datum, Dec. 3, 1974; lowest measured, 72.87 ft (22.211 m) below land-surface datum, May 25, 1954.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	29.67	Feb. 17, 1978	32.7	June 8, 1978	34.05	July 25, 1978	32.96
Dec. 12	32.9	Apr. 12	34.08				

470232118572901 Local number, 18/31-20D1.
LOCATION.--Lat 47°02'32", long 118°57'29", Hydrologic Unit 17020015.
Owner: J. Fox Estate.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 150 ft (45.7 m).
DATUM.--Land-surface datum is 1,255 ft (382.5 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.32 ft (16.557 m) below land-surface datum, Oct. 4, 1973; lowest measured, 84.27 ft (25.686 m) below land-surface datum, Aug. 2, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	79.18						

470451118582001 Local number, 18/31-6F1.
LOCATION.--Lat 47°04'51", long 118°58'20", Hydrologic Unit 17020015.
Owner: Chas. Forbes.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 15 in (375 mm), depth 254 ft (77.4 m), cased to 47 ft (14.3 m).
DATUM.--Land-surface datum is 1,166 ft (355.4 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1951, December 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.44 ft (4.097 m) below land-surface datum, Aug. 4, 1967; lowest measured, 164.0 ft (49.99 m) below land-surface datum, June 25, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	142.4	Mar. 8, 1978	104.8				

ADAMS COUNTY--Continued

470815118222202 Local number, 19/35-14Q2.
LOCATION.--Lat 47°08'15", long 118°22'22", Hydrologic Unit 17020015, at Ritzville.
Owner: Ritzville No. 2.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 508 ft (154.8 m), cased to 140 ft (42.7 m).
DATUM.--Land-surface datum is 1,805 ft (550.2 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1962 to October 1973, March 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 119.9 ft (36.55 m) below land-surface datum, June 25, 1967; lowest measured, 190.6 ft (58.09 m) below land-surface datum, Sept. 6, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	143.7	Mar. 8, 1978	142.6				

471217118441802 Local number, 20/32-25C2.
LOCATION.--Lat 47°12'17", long 118°44'18", Hydrologic Unit 17020015.
Owner: Weldon Walter.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 706 ft (215.2 m).
DATUM.--Land-surface datum is 1,791 ft (545.9 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 251.48 ft (76.651 m) below land-surface datum, July 6, 1965; lowest measured, 315.05 ft (96.027 m) below land-surface datum, May 15, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	299.03						

471347118410101. Local number, 20/33-16E1.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test water-table well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 70 to 94 ft (21.3 to 28.7 m).
DATUM.--Land-surface datum is 1,670 ft (509 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 80.34 ft (24.488 m) below land surface datum, June 20, 1975; lowest measured, 93.38 ft (28.46 m) below land-surface datum, Apr. 23, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	82.8	Apr. 14, 1978	82.9	June 5, 1978	82.9	July 27, 1978	83.1
Feb. 13, 1978	83.2						

471347118410102. Local number, 20/33-16E2.
LOCATION.--47°13'47", 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 158 to 183 ft (48.2 to 55.8 m).
DATUM.--Land-surface datum is 1,670 ft (509 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 107.35 ft (32.720 m) below land-surface datum, Mar. 23, 1972; lowest measured, 137.0 ft (41.76 m) below land-surface datum, July 27, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	132.24	Apr. 14, 1978	129.4	June 5, 1978	134.3	July 27, 1978	137.0
Feb. 13, 1978	125.6						

471347118410103. Local number 20/33-16E3.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 282 to 299 ft (86.0 to 91.1 m).
DATUM.--Land-surface datum is 1,670 ft (509 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water-level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 109.89 ft (33.494 m) below land-surface datum, Feb. 23, 1972; lowest measured, 149.9 ft (45.69 m) below land-surface datum, July 27, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	141.85	Apr. 14, 1978	141.7	June 5, 1978	147.8	July 27, 1978	149.9
Feb. 13, 1978	128.4						

ADAMS COUNTY--Continued

471347118410104. Local number, 20/33-16E4.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 352 to 401 ft (107.3 to 122.2 m).
DATUM.--Land-surface datum is 1,670 ft (509 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 106.46 ft (32.449 m) below land-surface datum, Mar. 23, 1972; lowest measured, 133.7 ft (40.75 m) below land-surface datum, July 27, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	123.88	Apr. 14, 1978	126.2	June 5, 1978	126.2	July 27, 1978	133.7
Feb. 13, 1978	123.8						

471347118410105. Local number, 20/33-16E5.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 586 to 616 ft (178.6 to 187.8 m).
DATUM.--Land-surface datum is 1,670 ft (509 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 112.35 ft (34.244 m) below land-surface datum, Feb. 23, 1972; lowest measured, 257.45 ft (78.47 m) below land-surface datum, July 27, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	230.08	Apr. 14, 1978	285.8	June 5, 1978	294.4	July 27, 1978	257.45
Feb. 13, 1978	143.0						

471347118410106. Local number, 20/33-16E6.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 676 to 701 ft (206.0 to 213.7 m).
DATUM.--Land-surface datum is 1,670 ft (509 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 279.19 ft (85.097 m) below land-surface datum, Apr. 21, 1971; lowest measured, 389.77 ft (118.80 m) below land-surface datum, June 16, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	389.00	Apr. 14, 1978	357.9	June 5, 1978	377.6	July 27, 1978	368.06
Feb. 13, 1978	348.55						

471426118090401 Local number, 20/37-9J1.
LOCATION.--Lat 47°14'26", long 118°09'04", Hydrologic Unit 17020015, at Keystone.
Owner: Burlington Northern.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, depth 402 ft (122.5 m).
DATUM.--Land-surface datum is 1,935 ft (589.8 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 105.25 ft (32.080 m) below land-surface datum, Apr. 10, 1966; lowest measured, 137.4 ft (41.88 m) below land-surface datum, Oct. 14, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	137.4	Mar. 8, 1978	123.4				

BENTON COUNTY

460237119383001. Local number, 7/25-36N1.
LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), total depth 860 ft (262.1 m), uncased depth interval from 105 to 185 ft (32.0 to 56.4 m).
DATUM.--Land-surface datum is 730 ft (222.5 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 101.4 ft (30.91 m) below land-surface datum, June 23, 1976; lowest measured, 133.50 ft (40.69 m) below land-surface datum, Nov. 1, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 6, 1977	133.1	Mar. 14, 1978	132.9	July 27, 1978	132.6	Sept. 21, 1978	125.6
Jan. 17, 1978	132.2	June 19	132.9				

460237119383003. Local number, 7/25-36N3.
LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 860 ft (262.1 m), uncased depth interval from 720 to 755 ft (219.5 to 230.1 m).
DATUM.--Land-surface datum is 730 ft (222.5 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 364.5 ft (111.10 m) below land-surface datum, May 5, 1977; lowest measured, 374.30 ft (114.09 m) below land-surface datum, Nov. 1, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 6, 1977	369.3	Mar. 14, 1978	369.25	July 27, 1978	370.8	Sept. 21, 1978	370.8
Jan. 17, 1978	369.0	June 19	366.0				

460237119383004 Local number 7/25-36N4.
LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (350 m), total depth 860 ft (262.1 m), uncased depth interval from 770 to 860 ft (234.7 to 262.1 m).
DATUM.--Land-surface datum is 730 ft (222.5 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 368.2 ft (112.23 m) below land-surface datum, July 5, 1977, lowest measured, 373.40 ft (113.81 m) below land-surface datum, Dec. 14, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 6, 1977	368.3	Mar. 14, 1978	368.75	July 27, 1978	369.75	Sept. 21, 1978	370.0
Jan. 17, 1978	369.6	June 19	368.75				

461226119220301. Local number, 8/28-6M1.
LOCATION.--Lat 46°12'26", long 119°22'03", Hydrologic Unit 17030003.
Owner: Dr. R. M. Debit.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 8 in (200 mm) depth 265 ft (80.8 m).
DATUM.--Land-surface datum 677 ft (206.3 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--December 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 128.2 ft (39.08 m) below land-surface datum, Dec. 6, 1977; lowest measured, 147.7 ft (45.02 m) below land-surface datum, Apr. 9, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 6, 1977	128.2	Mar. 14, 1978	132.2				

CHELAN COUNTY

473110120282001. Local number, 23/19-4E2.
LOCATION.--Lat 47°31'10", long 120°28'20", Hydrologic Unit 17020011, at Cashmere.
Owner: City of Cashmere.
AQUIFER.--Alluvial sand and gravel of Holocene Age.
WELL CHARACTERISTICS.--Dug public-supply water-table well, diameter 6 ft (1.8 m), depth 24 ft (7.3 m), lined with concrete.
DATUM.--Land-surface datum about 784 ft (239.0 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--June 1945 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.04 ft (3.36 m) below land-surface datum, Feb. 1, 1972; lowest measured, 21.70 ft (6.61 m) below land-surface datum, Sept. 4, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 5, 1977	18.31	Feb. 13, 1978	16.29	June 5, 1978	17.15	Aug. 5, 1978	19.76
Nov. 28	17.85	Apr. 10	15.26				

DOUGLAS COUNTY

472648119525001. Local number, 23/23-36G1.
LOCATION.--Lat 47°26'48", long 119°52'50", Hydrologic Unit 17020012.
Owner: Palisades Irrigation District.
AQUIFER.--Glacial gravel of Holocene Age.
WELL CHARACTERISTICS.--Dug irrigation, water-table well, diameter 40 to 72 in (1,000 to 1,800 mm) depth 154 ft (46.9 m) lined with concrete to 152 ft (46.3 m).
DATUM.--Land-surface datum about 1,030 ft (314 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1943, April 1953 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.15 ft (40.28 m) below land-surface datum, Apr. 29, 1959; lowest measured, 146.79 ft (44.74 m) below land-surface datum, Oct. 12, 1970.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO OCTOBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 10, 1977	144.52	Feb. 16, 1978	140.94				

474855119303901. Local number, 27/26-25D1.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 38 to 53 ft (11.6 to 16.2 m).
DATUM.--Land-surface datum is 2,215 ft (675.1 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water level measured in casing.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.36 ft (4.68 m) below land-surface datum, May 24, 1974; lowest measured, 22.95 ft (7.00 m) below land-surface datum, Oct. 4, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1977	22.95	Mar. 14, 1978	20.69	May 31, 1978	19.57	Aug. 21, 1978	19.64
Dec. 2	22.80						

474855119303902. Local number, 27/26-25D2.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 70 to 152 ft (21.3 to 46.3 m), uncased.
DATUM.--Land-surface datum is 2,215 ft (675.1 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 91.83 ft (27.99 m) below land-surface datum, May 24, 1974; lowest measured, 102.48 ft (31.24 m) below land surface datum, Jan. 20, 1975.

WATER LEVEL, BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1977	101.22	Mar.14, 1978	98.77	May 31, 1978	96.70	Aug. 21, 1978	95.59
Dec. 2	100.19						

474855119303904. Local number 27/26-25D4.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 490 to 610 ft (149.4 to 185.9 m), uncased, and perforated from 465 to 485 ft (141.7 to 147.8 m).
DATUM.--Land-surface datum is 2,215 ft (675.1 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 277.40 ft (84.55 m) below land-surface datum, Apr. 20, 1974; lowest measured, 324.95 ft (99.04 m) below land-surface datum, July 23, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1977	322.51	Mar. 14, 1978	321.9	May 31, 1978	321.9	Aug. 21, 1978	319.5
Dec. 2	321.64						

474855119303905. Local number, 27/26-25D5.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 630 to 687 ft (192.0 to 209.4 m) uncased, and screened from 750 to 760 ft (228.6 to 231.6 m).
DATUM.--Land-surface datum is 2,215 ft (675.1 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 324.00 ft (98.76 m) below land-surface datum, May 10, and Dec. 14, 1976; lowest measured, 327.90 ft (99.94 m) below land-surface datum, Apr. 20, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 4, 1977	323.55	Mar. 14, 1978	323.8	May 31, 1978	322.9	Aug. 21, 1978	320.2
Dec. 2	324.06						

FRANKLIN COUNTY

461705118570001. Local number, 9/31-4N1.
LOCATION.--Lat 46°17'05", long 118°57'00", Hydrologic Unit 17060110, at Pasco.
Owner: James W. Rogers
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 343 ft (104.5 m).
DATUM.--Land-surface datum about 658 ft (200.6 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 266.60 ft (81.26 m) below land-surface datum, Mar. 19, 1975; lowest measured, 292.01 ft (89.00 m) below land-surface datum, Apr. 18, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 22, 1977	267.9	Mar. 30, 1978	269.4	Aug. 2, 1978	275.3	Sept. 27, 1978	291.6
Jan. 24, 1978	267.6	May 24	281.0				

462030119062001. Local number, 10/30-19C1.
LOCATION.--46°20'30", long 119°06'20", Hydrologic Unit 17020016.
Owner: Andrus and Roberts Produce Company.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled industrial water-table well, diameter 6 in (150 mm), depth 395 ft (120.4 m).
DATUM.--Land-surface datum about 500 ft (152 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 97.85 ft (29.82 m) below land-surface datum, June 1, 1976; lowest measured, 134.94 ft (41.13 m) below land-surface datum, Nov. 7, 1960.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Jan. 19, 1978	97.25	May 23, 1978	97.40	Aug. 1, 1978	117.50A	Sept. 27, 1978	119.9
Mar. 28	97.05						

462343119092802. Local number, 11/29-34J2.
LOCATION.--Lat 46°23'43", long 119°09'28", Hydrologic Unit 17020016.
Owner: Bob Ransome.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 8 in (200 mm), depth 211 ft (64.3 m), cased to 211 ft (64.3 m).
DATUM--Land-surface datum about 692 ft (211 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--June 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 170.5 ft (51.97 m) below land-surface datum, Sept. 29, 1977; lowest measured, 187.0 ft (57.00 m) below land-surface datum, June 1, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 28, 1978	181.8A	May 23, 1978	171.9B	Aug. 2, 1978	156.5B	Sept. 27, 1978	171.0

462830119043301. Local number, 11/30-5B1.
LOCATION.--Lat 46°28'30", long 119°04'33", Hydrologic Unit 17020016.
Owner: Fred Holmes Community.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 8 in (200 mm), depth 110 ft (33.5 m), cased to 29 ft (8.8 m).
DATUM.--Land-surface datum about 741 ft (225.9 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--January 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.2 ft (9.51 m) below land-surface datum, Sept. 29, 1972; lowest measured, 61.05 ft (18.61 m) below land-surface datum, Apr. 15, 1958.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 23, 1977	44.55B	Mar. 28, 1978	43.95A	Aug. 1, 1978	42.95A	Sept. 27, 1978	42.25A
Jan. 23, 1978	45.25A	May 23	44.25A				

463231119001601. Local number, 12/30-12E1.
LOCATION.--Lat 46°32'31", long 119°00'16", Hydrologic Unit 17020016, at Eltopia.
Owner: Lea Hailey.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled stock water-table well, diameter 6 in (150 mm), depth 121 ft (36.9 m), cased to 120 ft (36.6 m).
DATUM.--Land-surface datum about 676 ft (206.0 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 92.3 ft (28.13 m) below land-surface datum, Oct. 2, 1970; lowest measured, 108.69 ft (33.13 m) below land-surface datum, Apr. 16, 1959.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 23, 1977	102.0	Mar. 28, 1978	100.82	Aug. 1, 1978	102.6A	Sept. 27, 1978	96.7
Jan. 23, 1978	104.1A	May 24	101.6				

A Well being pumped.
B Well recently pumped.

FRANKLIN COUNTY--Continued

463339119125601. Local number 12/29-5D1.
LOCATION.--Lat 46°33'39", long 119°12'56", Hydrologic Unit 17020016.
Owner: James Reynolds.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 181 ft (55.2 m), cased to 157 ft (47.9 m).
DATUM.--Land-surface datum about 610 ft (185.9 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--January 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 113.00 ft (34.442 m) below land-surface datum, Dec. 15, 1959; lowest measured, 147.1 ft (44.84 m) below land-surface datum, Sept. 29, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 23, 1977	114.6	Mar. 28, 1978	129.45B	Aug. 1, 1978	133.6	Sept. 27, 1978	123.4B
Jan. 24, 1978	116.8	May 23	120.85				

463440118473001. Local number, 13/32-27N1.
LOCATION.--Lat 46°34'40", long 118°47'30", Hydrologic Unit 17020016, at Connell.
Owner: Dorsey Elgin.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 323 ft (98.5 m).
DATUM.--Land-surface datum about 1,155 ft (352.0 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1950-52, August 1956, June 1958, April 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 188.0 ft (57.30 m) below land-surface datum, Sept. 27, 1978; lowest measured 281.47 ft (85.79 m) below land-surface datum, Oct. 4, 1950.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 23, 1977	191.5	Mar. 29, 1978	189.3	July 31, 1978	188.2	Sept. 27, 1978	188.0
Jan. 24, 1978	189.8	May 23	188.6				

463641119001001. Local number, 13/30-13M1.
LOCATION.--Lat 46°36'41", long 119°00'10", Hydrologic Unit 17020016, at Mesa.
Owner: P. H. Taylor.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic and stock water-table well, diameter 6 in (150 mm), depth 186 ft (56.7 m), cased to 11 ft (3.4 m).
DATUM.--Land-surface datum about 956 ft (291.4 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--March 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 107.8 ft (32.86 m) below land-surface datum, Sept. 26, 1974; lowest measured, 141.72 ft (43.20 m) below land-surface datum, May 25, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 23, 1977	126.9A	Mar. 28, 1978	137.5	Aug. 1, 1978	130.4A	Sept. 27, 1978	110.1
Jan. 23, 1978	135.2	May 24	141.7				

463900118470001. Local number, 14/32-33Q1.
LOCATION.--Lat 46°39'00", long 118°47'00", Hydrologic Unit 17020016, near Connell.
Owner: J. W. Stine.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 281 ft (85.6 m), cased to 51 ft (15.5 m).
DATUM.--Land-surface datum is 794 ft (242.0 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--June 1952, October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 97.0 ft (29.57 m) below land-surface datum, June 11, 1952; lowest measured, 124.0 ft (37.80 m) below land-surface datum, Sept. 28, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 23, 1977	119.	Feb. 3, 1978	117.	Mar. 29, 1978	117.	May 23, 1978	121.A

463950118564001. Local number, 14/31-29R1.
LOCATION.--Lat 46°39'50", long 118°56'40", Hydrologic Unit 17020016.
Owner: Keith Herrman.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 315 ft (96.0 m), cased to 104 ft (31.7 m).
DATUM.--Land-surface datum about 1,118 ft (340.8 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 176.7 ft (53.86 m) below land-surface datum, Oct. 2, 1975; lowest measured, 232.80 ft (70.96 m) below land-surface datum, Apr. 26, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 23, 1977	180.1	Mar. 30, 1978	183.26	Aug. 1, 1978	181.6	Sept. 27, 1978	179.9
Jan. 23, 1978	181.5	May 24	183.26				

A Well being pumped.
B Well recently pumped.

FRANKLIN COUNTY--Continued

464028119101601. Local number, 14/29-27E1.
LOCATION.--Lat 46°40'28", long 119°10'16", Hydrologic Unit 17020016.
Owner: U.S. Bureau of Reclamation.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 8 in (200 mm), depth 498 ft (151.8 m), cased to 435 ft (132.6 m).
DATUM.--Land-surface datum about 947 ft (288.6 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--December 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.25 ft (24.16 m) below land-surface datum, Sept. 29, 1976; lowest measured, 235.79 ft (71.87 m) below land surface-datum, Mar. 24, 1960.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 23, 1977	76.5	Mar. 28, 1978	76.70	Aug. 1, 1978	148.2A	Sept. 27, 1978	76.9
Jan. 23, 1978	76.0	May 23	159.5A				

GRANT COUNTY

465539119332101. Local number, 17/26-34D1.
LOCATION.--Lat 46°55'39", long 119°33'21", Hydrologic Unit 17020015.
Owner: J. P. Needham.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 240 ft (73.2 m), cased to 60 ft (18.3 m).
DATUM.--Land-surface datum is 1,085 ft (330.7 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--September 1940, March 1956 to December 1958, March 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.06 ft (0.02 m) below land-surface datum Mar. 5, 1971; lowest measured, 177.66 ft (54.15 m) below land-surface datum, Sept. 22, 1956.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	4.20	Feb. 16, 1978	4.61	Apr. 12, 1978	4.59	June 7, 1978	3.80
Dec. 7	4.46						

465626119010601. Local number, 17/30-26C1.
LOCATION.--46°56'26", long 119°01'06", Hydrologic Unit 17020015.
Owner: Albert Widmer.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 400 ft (121.9 m).
DATUM.--Land-surface datum is 1,402 ft (427.3 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--August 1955, June 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 236.7 ft (72.15 m) below land-surface datum, Jan. 18, 1974; lowest measured, 292.03 ft (89.01 m) below land-surface datum, Oct. 3, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 8, 1977	254.60	Apr. 12, 1978	253.4	June 8, 1978	253.20	July 25, 1978	253.58
Feb. 17, 1978	252.7						

465851119151501. Local number, 17/28-11F1.
LOCATION.--Lat 46°58'51", long 119°15'16", Hydrologic Unit 17020015.
Owner: U.S. Government, U.S. Bureau of Reclamation.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused artesian test well, diameter 2 in (50 mm), depth 168 ft (51.2 m), cased to 8 ft (2.4 m).
DATUM.--Land-surface datum is 1,051.6 ft (320.53 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--March 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 90.88 ft (27.70 m) below land-surface datum, July 22, 1956; lowest measured, 141.01 ft (42.98 m) below land-surface datum, Jan. 31, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	104.63	Mar. 8, 1978	99.90				

465903119070901. Local number, 17/29-12C1.
LOCATION.--Lat 46°59'03", long 119°07'09", Hydrologic Unit 17020015.
Owner: Rogers Hayes.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 315 ft (96.0 m).
DATUM.--Land-surface datum about 1,212 ft (369.4 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--September 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 33.35 ft (10.16 m) below land-surface datum, Oct. 17, 1967; lowest measured, 220.15 ft (67.10 m) below land-surface datum, Aug. 31, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 12, 1977	43.53	Apr. 13, 1978	51.60	June 8, 1978	48.81	July 24, 1978	43.01B
Feb. 17, 1978	48.69						

A Well being pumped.
B Well recently pumped.

470022119025801. Local number, 18/30-34M1.
LOCATION.--Lat 47°00'22", long 119°02'38", Hydrologic Unit 17020015.
Owner: H. Yamamoto.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 147 ft (44.8 m).
DATUM.--Land-surface datum is 1,174 ft (357.8 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--February 1943 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 36.75 ft (11.20 m) below land-surface datum Oct. 7, 1974; lowest measured, 108.70 ft (33.13 m) below land-surface datum, Oct. 29, 1947.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	44.15	Feb. 17, 1978	47.7	June 6, 1978	44.19A	July 25, 1978	42.60B
Dec. 12	48.0	Apr. 13	47.75				

470030119390301. Local number, 18/25-35K1.
LOCATION.--Lat 47°00'30", long 119°39'03", Hydrologic Unit 17020015.
Owner: Farm Management Service.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, depth 960 ft (292.6 m).
DATUM.--Land-surface datum is 1,140 ft (347.5 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--May 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 56.4 ft (17.19 m) below land-surface datum, Feb. 15, 1977; lowest measured, 308. ft (93.88 m) below land-surface datum, July 26, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	228.	Feb. 16, 1978	57.4	June 7, 1978	269.A	July 26, 1978	308.A
Dec. 7	78.9	Apr. 12	188.A				

470148119412601. Local number, 18/25-28B1.
LOCATION.--Lat 47°01'48", long 119°41'26", Hydrologic Unit 17020015.
Owner: Farm Management Service.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, depth 735 ft (224.0 m).
DATUM.--Land-surface datum is 1,151 ft (350.8 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--June 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 46.13 ft (14.07 m) below land-surface datum, Feb. 11, 1976; lowest measured, 303. ft (92.35 m) below land-surface datum, July 26, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	99.1	Feb. 16, 1978	52.86	June 7, 1978	122.6A	July 26, 1978	303.A
Dec. 7	86.5	Apr. 12	122.6A				

470235119115601. Local number, 18/29-20B1.
LOCATION.--Lat 47°02'53", long 119°11'56", Hydrologic Unit 17020015.
Owner: R. Debeaument.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled stock-supply water-table well, diameter 6 in (150 mm), depth 219 ft (66.8 m).
DATUM.--Land-surface datum is 1,179 ft (359.4 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1949 to February 1950, August 1954 to October 1964, March 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.71 ft (1.436 m) below land-surface datum, Apr. 24, 1961; lowest measured, 150.21 ft (45.78 m) below land-surface datum, Aug. 26, 1954.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	45.87	Feb. 17, 1978	52.16	June 8, 1978	52.50	July 24, 1978	47.69
Dec. 12	48.26	Apr. 13	55.71				

470352119435201. Local number, 18/25-8M1.
LOCATION.--Lat 47°03'52", long 119°43'52", Hydrologic Unit 17020015.
Owner: Metropolitan Life.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Dug unused water-table well, diameter 36 in (900 mm), depth 112 ft (34.1 m), lined with concrete to 112 ft (34.1 m).
DATUM.--Land-surface datum about 1,179 ft (359.4 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.22 ft (8.91 m) below land-surface datum, Feb. 19, 1969; lowest measured, 98.76 ft (30.10 m) below land-surface datum, Apr. 27, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 7, 1977	31.40	Apr. 12, 1978	30.48	June 7, 1978	35.09C	July 26, 1978	39.80C
Feb. 16, 1978	30.81						

A Well being pumped.
B Well recently pumped.
C Nearby well being pumped.

GRANT COUNTY--Continued

470417119045401. Local number, 18/30-8C1.
LOCATION.--Lat 47°04'17", long 119°04'34", Hydrologic Unit 17020015.
Owner: Wayner Goff.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 228 ft (69.5 m).
DATUM.--Land-surface datum is 1,225 ft (373.4 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--May 1951 to October 1951, October 1954 to April 1956, February 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.25 ft (15.93 m) below land-surface datum, Sept. 16, 1969; lowest measured, 181.26 ft (55.25 m) below land-surface datum, Aug. 31, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	57.72	Feb. 14, 1978	69.95	June 6, 1978	68.86	July 25, 1978	63.57
Dec. 13	63.19	Apr. 13	73.07				

470445119160301. Local number, 18/28-2L1.
LOCATION.--Lat 47°04'45", long 119°16'03", Hydrologic Unit 17020015.
Owner: Dune Lake Company.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 184 ft (56.1 m).
DATUM.--Land-surface datum about 1,128 ft (343.8 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.45 ft (0.14 m) below land-surface datum, Sept. 4, 1970; lowest measured, 74.25 ft (22.63 m) below land-surface datum, May 14, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	3.94	Apr. 13, 1978	6.11				

473608119331502. Local number 19/26-34D1.
LOCATION.--Lat 47°06'08", long 119°33'15", Hydrologic Unit 17020015.
Owner: Washington State Highways.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 96 ft (29.3 m), cased to 65 ft (19.8 m).
DATUM.--Land-surface datum about 1,168 ft (356.0 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--March 1939-July 1963, November 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.77 ft (8.16 m) below land-surface datum, Feb. 15, 1977; lowest measured, 99.59 ft (30.355 m) below land-surface datum, July 17, 1958.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	26.85	Feb. 15, 1978	26.33	June 7, 1978	26.15	July 26, 1978	26.28
Dec. 13	26.34	Apr. 12	26.07				

470621119144401. Local number, 19/28-25L1.
LOCATION.--Lat 47°06'21", long 119°14'44", Hydrologic Unit 17020015, at Moses Lake.
Owner: Paul Landis.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARCTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 492 ft (150.0 m).
DATUM.--Land-surface datum about 1,192 ft (363.3 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.3 ft (12.28 m) below land-surface datum, Sept. 5, 1974; lowest measured, 180.30 ft (54.96 m) below land-surface datum, Sept. 19, 1950.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	41.87	Feb. 16, 1978	44.96	June 6, 1978	46.02	July 24, 1978	45.84
Dec. 13	41.94	Apr. 13	45.98				

470626119101801. Local number, 19/29-28J1.
LOCATION.--Lat 47°06'26", long 119°10'18", Hydrologic Unit 17020015.
Owner: J. E. Anderson.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, depth 800 ft (243.8 m).
DATUM.--Land-surface datum is 1,245 ft (379.5 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD. June 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.06 ft (10.69 m) below land-surface datum, Mar. 11, 1976; lowest measured, 56.30 ft (17.16 m) below land-surface datum, June 19, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	32.8	Mar. 8, 1978	37.8				

GRANT COUNTY--Continued

470627119594701. Local number, 19/25-26N1.
LOCATION.--Lat 47°06'27", long 119°59'47", Hydrologic Unit 17020015.
Owner: Rudy Stetner.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 110 ft (33.5 m).
DATUM.--Land-surface datum is 1,185 ft (361.2 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--September 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.09 ft (14.963 m) below land-surface datum, Mar. 5, 1971; lowest measured, 106.63 ft (32.501 m) below land-surface datum, Mar. 3, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	64.24	Feb. 15, 1978	58.59	June 7, 1978	58.48	July 26, 1978	63.05
Dec. 13	61.80	Apr. 12	57.05				

470651119420501. Local number, 19/25-28M1.
LOCATION.--Lat 47°06'51", long 119°42'05", Hydrologic Unit 17020015.
Owner: Edwin A. Wyatt.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 124 ft (37.8 m).
DATUM.--Land-surface datum about 1,194 ft (363.9 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.00 ft (11.28 m) below land-surface datum, Apr. 19, 1972; lowest measured, 114.47 ft (34.89 m) below land-surface datum, Apr. 7, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	44.10	Feb. 15, 1978	40.92	June 7, 1978	43.81	July 26, 1978	44.47
Dec. 13	42.54	Apr. 12	39.97				

470652119230501. Local number, 19/27-26A1.
LOCATION.--Lat 47°06'52", long 119°23'03", Hydrologic Unit 17020015.
Owner: C. M. Grant.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug domestic and irrigation water-table well, diameter 48 to 6 in (1,200 to 150 mm), depth 52 ft (15.8 m).
DATUM.--Land-surface datum about 1,075 ft (327.1 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.68 ft (7.52 m) below land-surface datum, Mar. 14, 1974; lowest measured, 41.86 ft (12.76 m) below land-surface datum, July 22, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	35.03B	Mar. 8, 1978	27.20B				

470658119261401. Local number, 19/27-28B1.
LOCATION.--Lat 47°06'58", long 119°26'14", Hydrologic Unit 17020015.
Owner: John Quick.
AQUIFER.--Gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 90 ft (27.4 m).
DATUM.--Land-surface datum is 1,101 ft (335.6 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--December 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 59.50 ft (18.06 m) below land-surface datum, Mar. 10, 1976; lowest measured, 62.70 ft (19.11 m) below land-surface datum, Dec. 16, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	62.83	Mar. 8, 1978	63.84				

470729119101501. Local number, 19/29-22E1.
LOCATION.--Lat 47°07'29", long 119°10'15", Hydrologic Unit 17020015.
Owner: Carnation Company.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 14 in (350 mm), depth 560 ft (170.7 m).
DATUM.--Land-surface datum is 1,293 ft (394.1 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--June 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 55.37 ft (16.88 m) below land-surface datum, Sept. 9, 1975; lowest measured, 103.00 ft (31.39 m) below land-surface datum, Sept. 9, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	55.00	Mar. 8, 1978	76.				

B Well recently pumped.

470753119192402. Local number, 19/28-20A1.
LOCATION.--47°07'53", long 119°19'24", Hydrologic Unit 17020015.
Owner: M. C. Wilson.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 36 in (900 mm), depth 39 ft (11.9 m), lined with concrete to 38 ft (11.6 m).
DATUM.--Land-surface datum about 1,080 ft (329 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.21 ft (9.82 m) below land-surface datum, Oct. 3, 1975; lowest measured, 46.95 ft (14.31 m) below land-surface datum, Mar. 1, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	35.07	Feb. 16, 1978	36.83	June 6, 1978	35.15	July 25, 1978	34.70
Dec. 13	37.24	Apr. 13	35.18				

470759119344501. Local number, 19/26-20A1.
LOCATION.--Lat 47°07'59", long 119°34'45", Hydrologic Unit 17020015.
Owner: Joe Taimaka.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 150 ft (45.7 m), cased to 100 ft (30.5 m).
DATUM.--Land-surface datum about 1,224 ft (373.1 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--March 1939-August 1940, April 1942, September 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 62.53 ft (19.0 m) below land-surface datum, Apr. 19, 1972; lowest measured, 151.45 ft (46.16 m) below land-surface datum, Apr. 11, 1952.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	65.98	Feb. 15, 1978	64.65	June 7, 1978	67.10	July 26, 1978	73.65
Dec. 13	63.80	Apr. 12	65.81				

470805119263801. Local number, 19/27-16N1.
LOCATION.--Lat 47°08'05", long 119°26'38", Hydrologic Unit 17020015.
Owner: Wes Avara.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 84 in (2,100 mm), depth 74 ft (22.6 m), lined with concrete to 65 ft (19.8 m).
DATUM.--Land-surface datum about 1,094 ft (333.5 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--December 1942 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.37 ft (14.44 m) below land-surface datum, Mar. 14, 1974; lowest measured, 81.77 ft (24.92 m) below land-surface datum, Oct. 28, 1947.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	50.07	Mar. 8, 1978	53.77				

470811119074301. Local number, 19/29-14J1.
LOCATION.--Lat 47°08'11", long 119°07'43", Hydrologic Unit 17020015.
Owner: Jim Abram.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 12 in (300 mm), depth 368 ft (112.2 m).
DATUM.--Land-surface datum about 1,357 ft (413.6 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--December 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.21 ft (40.30 m) below land-surface datum, Dec. 30, 1964; lowest measured, 234.03 ft (71.33 m) below land-surface datum, Oct. 27, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	147.87	Dec. 13, 1977	152.27	Feb. 17, 1978	143.37		

4709.1119192401. Local number, 19/28-8H2.
LOCATION.--Lat 47°09'13", long 119°19'24", Hydrologic Unit 17020015.
Owner: Mr. Baker.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation and domestic water-table well, diameter 10 in (250 mm), depth 48 ft (14.6 m), cased to 48 ft (14.6 m).
DATUM.--Land-surface datum about 1,090 ft (332.2 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.43 ft (12.02 m) below land-surface datum, Aug. 5, 1977; lowest measured, 48.55 ft (14.74 m) below land-surface datum, Dec. 13, 1960.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	43.05A	Feb. 16, 1978	45.37	June 6, 1978	43.18A	July 25, 1978	43.19A
Dec. 13	47.10	Apr. 13	43.87A				

A Well being pumped.

GRANT COUNTY--Continued

470935119174201. Local number, 19/28-10D1.
LOCATION.--Lat 47°09'35", long 119°17'42", Hydrologic Unit 17020015.
Owner: Harold Mathenia.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug and drilled domestic water-table well, diameter 40 to 6 in (1,000 to 150 mm), depth 102 ft (31.1 m).
DATUM.--Land-surface datum about 1,114 ft (339.5 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.23 ft (14.70 m) below land-surface datum, Sept. 16, 1969; lowest measured, 62.08 ft (18.92 m) below land-surface datum, Aug. 30, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	49.67						

470952118592701. Local number, 19/30-1L1.
LOCATION.--Lat 47°09'52", long 118°59'27", Hydrologic Unit 17020015, near Ruff.
Owner: A. L. Ramm.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-level well, diameter 12 in (300 mm), depth 523 ft (159.4 m), cased to 37 ft (11.3 m).
DATUM.--Land-surface datum is 1,420 ft (432.8 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--January 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 257.0 ft (78.33 m) below land-surface datum, Apr. 2, 1976; lowest measured, 406. ft (123.7 m) below land-surface datum, June 9, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	358.	Feb. 17, 1978	383.	Apr. 14, 1978	387.A	June 9, 1978	406.A
Dec. 7	389.						

471020119210701. Local number, 19/28-6C1.
LOCATION.--Lat 47°10'20", long 119°21'07", Hydrologic Unit 17020015.
Owner: Troy Farms Inc.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 48 in (1,200 mm), depth 37 ft (11.3 m), lined with concrete to 37 ft (11.3 m).
DATUM.--Land-surface datum about 1,078 ft (328.6 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--March 1939-April 1942, August 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.10 ft (8.870 m) below land-surface datum, June 24, 1971; lowest measured, 42.42 ft (12.93 m) below land-surface datum, June 19, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1977	34.36	Feb. 15, 1978	36.33	June 7, 1978	33.16	July 26, 1978	34.97A
Dec. 9	38.7	Apr. 13	35.36				

471955119324701. Local number, 21/26-10L2.
LOCATION.--Lat 47°19'55", long 119°32'47", Hydrologic Unit 17020015.
Owner: D. L. Nelson.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 122 ft (37.2 m), cased to 100 ft (30.5 m).
DATUM.--Land-surface datum about 1,260 ft (384 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--September 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.87 ft (6.06 m) below land-surface datum, Aug. 28, 1975; lowest measured, 68.27 ft (20.81 m) below land-surface datum, Dec. 7, 1959.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1977	20.63	Feb. 14, 1978	22.97	June 5, 1978	23.38	July 27, 1978	21.20
Dec. 7	22.20	Apr. 14	21.36				

472009119300101. Local number, 21/26-12F1.
LOCATION.--Lat 47°20'09", long 119°30'01", Hydrologic Unit 17020015, near Ephrata.
Owner: Grant County.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 183 ft (55.8 m).
DATUM.--Land-surface datum is 1,259 ft (383.7 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--December 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 83.44 ft (25.43 m) below land-surface datum, Aug. 3, 1977; lowest measured, 117.77 ft (35.90 m) below land-surface datum, Mar. 13, 1950.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1977	83.50	Feb. 14, 1978	83.7	June 6, 1978	83.33	July 27, 1978	83.31
Dec. 7	83.43	Apr. 13	79.85				

A Well being pumped.

GRANT COUNTY--Continued

473505119085701. Local number, 24/29-10R1.
LOCATION.--Lat 47°35'05", long 119°08'57", Hydrologic Unit 17020014.
Owner: Harold Isaak.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 7 in (175 mm), depth 120 ft (36.6 m).
DATUM.--Land-surface datum is 1,771 ft (539.8 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.22 ft (24.15 m) below land-surface datum, Mar. 12, 1975; lowest measured, 93.84 ft (28.60 m) below land-surface datum, July 27, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	86.61	Feb. 14, 1978	84.66	June 5, 1978	82.93	July 27, 1978	83.35
Dec. 6	82.38	Apr. 14	93.84				

473644119161101. Local number, 24/28-2C1.
LOCATION.--Lat 47°36'44", long 119°16'11", Hydrologic Unit 17020014, near Coulee City.
Owner: Vern Adams.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 400 ft (121.9 m).
DATUM.--Land-surface datum is 1,661 ft (506.3 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.7 ft (16.06 m) below land-surface datum, Feb. 29, 1968; lowest measured, 126.1 ft (38.44 m) below land-surface datum, Sept. 8, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	109.6	Feb. 14, 1978	91.7	June 5, 1978	109.2B	July 27, 1978	110.1
Dec. 6	100.3	Apr. 14	110.9				

KITTITAS COUNTY

470052120290001. Local number, 18/19-32B1.
LOCATION.--Lat 47°00'52", long 120°29'00", Hydrologic Unit 17030001, near Ellensburg.
Owner: Department of Game.
AQUIFER.--Sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 10 in (250 mm), depth 267 ft (81.4 m), cased to 100 ft (30.5 m).
DATUM.--Land-surface datum is 1,723 ft (525.2 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--June 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.0 ft (5.79 m) below land-surface datum, Feb. 29, 1976; lowest measured, 65.59 ft (19.99 m) below land-surface datum, June 1, 1970.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Feb. 29, 1978	19.0B	Aug. 21, 1978	29.7A				

KLICKITAT COUNTY

454325120554301. Local number, 3/15-28A1.
LOCATION.--Lat 45°43'25", long 120°55'43", Hydrologic Unit 17070106.
Owner: Frank Garner.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 85 ft (25.9 m).
DATUM.--Land-surface datum about 1,695 ft (516.6 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--August 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.86 ft (2.09 m) below land-surface datum, Apr. 8, 1965; lowest measured, 18.2 ft (5.54 m) below land-surface datum, Oct. 21, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1977	18.2	Mar. 15, 1978	11.8				

454715120434901. Local number, 4/17-31L1.
LOCATION.--Lat 45°47'15", long 120°43'49", Hydrologic Unit 17070106.
Owner: T. V. Wilkins.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (400 mm), depth 139 ft (42.4 m).
DATUM.--Land-surface datum about 1,883 ft (573.9 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--August 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.99 ft (0.30 m) below land-surface datum, Feb. 16, 1966; lowest measured, 8.01 ft (2.44 m) below land-surface datum, Sept. 9, 1966.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1977	6.2	Mar. 15, 1978	2.5				

A Well being pumped.
B Well recently pumped.

KLICKITAT COUNTY--Continued

455008120561301. Local number, 4/15-16F1.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Land-surface datum is 1,590 ft (485 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 40 to 210 ft (12.2 to 64.0 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.1 ft (3.38 m) below land-surface datum, Apr. 12, 1976; lowest measured, 19.00 ft (5.79 m) below land-surface datum, Mar. 16, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1977	18.8	Mar. 15, 1978	13.1				

455008120561302. Local number, 4/15-16F2.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 170701016, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Land-surface datum is 1,590 ft (485 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 215 to 330 ft (65.5 to 100.6 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 11.0 ft (3.35 m) below land-surface datum, Apr. 12, 1976; lowest measured, 19.0 ft (5.79 m) below land-surface datum, Oct. 12, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1977	19.0	Mar. 15, 1978	13.3				

455008120561303. Local number, 4/15-16F3.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Land-surface datum is 1,590 ft (485 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 335 to 440 ft (102.1 to 134.1 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.6 ft (3.54 m) below land-surface datum, Apr. 12, 1976; lowest measured, 19.00 ft (5.79 m) below land-surface datum, Mar. 16, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1977	18.5	Mar. 15, 1978	13.8				

455008120561304. Local number, 4/15-16F4.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Land-surface datum is 1,590 ft (485 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 500 to 580 ft (152.4 to 176.8 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 200.4 ft (61.08 m) below land-surface datum, Mar. 15, 1977; lowest measured, 223.60 ft (68.153 m) below land-surface datum, Apr. 30, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1977	201.9	Mar. 15, 1978	197.0				

455948120175201. Local number, 6/20-22D1.
LOCATION.--Lat 45°59'48", long 120°17'52", Hydrologic Unit 17070101, near Bickleton.
Owner: L. Whitmore.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 8 in (200 mm), depth 44 ft (13.4 m).
DATUM.--Land-surface datum is 3,005 ft (915.9 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--May 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.30 ft (1.01 m) below land-surface datum, Apr. 9, 1971; lowest measured, 31.27 ft (9.53 m) below land-surface datum, Aug. 25, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1977	30.93B	Mar. 15, 1978	25.5				

B Well recently pumped.

LINCOLN COUNTY

471622118572501. Local number, 21/31-32D1.
LOCATION.--Lat 47°16'22", long 118°57'25", Hydrologic Unit 17020015.
Owner: Fred Kissler.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm) from 0 to 385 ft (0 to 117.3 m), 8 in (200 mm) diameter from 385 to 708 ft (117.3 to 215.8 m), total depth 708 ft (215.8 m).
DATUM.--Land-surface datum is 1,669 ft (508.7 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 255.0 ft (77.7 m) below land-surface datum, Feb. 28, 1965; lowest measured, 465.83 ft (141.99 m) below land-surface datum, Oct. 24, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	442.8	Mar. 8, 1978	339.				

471915118362401. Local number, 21/33-12P1.
LOCATION.--Lat 47°19'15", long 118°36'24", Hydrologic Unit 17020013.
Owner: King Brothers.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 15 in (375 mm), depth 403 ft (122.8 m), cased to 48 ft (14.6 m).
DATUM.--Land-surface datum is 1,602 ft (488.3 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.78 ft (3.90 m) below land-surface datum, Feb. 17, 1967; lowest measured, 128.9 ft (39.29 m) below land-surface datum, May 17, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	47.90	May 8, 1978	25.00				

471937118544402. Local number, 21/31-10M2.
LOCATION.--47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.
Owner: Mrs. Robert Schell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in (250 mm), depth 4,682 ft (1,427.1 m), cased to 98 ft (29.9 m).
DATUM.--Land-surface datum is 1,610 ft (491 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 98 to 735 ft (29.9 to 224.0 m), water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 230.25 ft (70.18 m) below land-surface datum, Jan. 8, 1973; lowest measured, 283.93 ft (86.54 m) below land-surface datum, July 27, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	281.44	Feb. 14, 1978	275.4	June 5, 1978	280.7	July 27, 1978	283.93
Dec. 12	277.35	Apr. 14	274.1				

471937118544403. Local number, 21/31-10M3.
LOCATION.--Lat 47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.
Owner: Mrs. Robert Schell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in (250 mm), depth 4,682 ft (1,427.1 m), cased to 98 ft (29.9 m).
DATUM.--Land-surface datum is 1,610 ft (491 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 742 to 1,480 ft (226.2 to 451.1 m), water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 231.32 ft (70.51 m) below land-surface datum, Jan. 8, 1973; lowest measured, 316.67 ft (96.52 m) below land-surface datum, July 27, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	313.74	Feb. 14, 1978	302.2	June 5, 1978	312.1	July 27, 1978	316.67
Dec. 12	307.28	Apr. 14	300.6				

471937118544404. Local number, 21/31-10M4.
LOCATION.--Lat 47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.
Owner: Mrs. Robert Schell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS. Drilled oil-test well, diameter 10 in (250 mm), depth 4,682 ft (1,427.1 m), cased to 98 ft (29.9 m).
DATUM.--Land-surface datum is 1,610 ft (491 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 1,488 to 2,300 ft (453.5 to 701.0 m), water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 224.56 ft (68.45 m) below land-surface datum, May 24, 1976; lowest measured, 236.59 ft (72.11 m). Dec. 12, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	236.35	Feb. 14, 1978	235.3	June 5, 1978	234.88	July 27, 1978	236.04
Dec. 12	236.59	Apr. 14	234.3				

LINCOLN COUNTY--Continued

472513118053801. Local number, 22/37-12C1.
LOCATION.--Lat 47°25'13", long 118°05'38", Hydrologic Unit 17020013.
Owner: Wesley Bly.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 380 ft (115.8 m), cased to 40 ft (12.2 m).
DATUM.--Land-surface datum is 2,229 ft (679.4 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 62.11 ft (18.93 m) below land-surface datum, Jan. 26, 1971; lowest measured, 131.48 ft (40.08 m) below land-surface datum, Mar. 8, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	128.48	Mar. 8, 1978	131.48				

472802118165401. Local number, 23/36-21P1.
LOCATION.--Lat 47°28'02", long 118°16'54", Hydrologic Unit 17020013, near Harrington.
Owner: Harry Moeller.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 242 ft (73.8 m), cased to 17 ft (5.2 m).
DATUM.--Land-surface datum is 2,138 ft (651.7 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 51.5 ft (15.70 m) below land-surface datum, Jan. 28, 1970; lowest measured, 103.3 ft (31.49 m) below land-surface datum, May 14, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	65.2	Mar. 8, 1978	57.4				

472839118481901. Local number, 23/32-20A1.
LOCATION.--Lat 47°28'39", long 118°48'19", Hydrologic Unit 17020013.
Owner: L. J. Bonney.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in (400 mm), depth 710 ft (216.4 m), cased to 644 ft (196.3 m).
DATUM.--Land-surface datum is 1,855 ft (565.4 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 173.55 ft (52.898 m) below land-surface datum, Mar. 14, 1967; lowest measured, 351.8 ft (107.23 m) below land-surface datum, July 21, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	348.	Mar. 7, 1978	302.				

473433118560301. Local number, 24/31-16E1.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water table well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).
DATUM.--Land surface datum is 1,845 ft (562.4 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 60 to 316 ft (18.3 to 96.3 m), water level measured in 10 in (250 mm) diameter casing.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 175.20 ft (53.40 m) below land-surface datum, Sept. 10, 1975; lowest measured, 185.70 ft (56.60 m) below land-surface datum, Feb. 20, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	183.4	Feb. 14, 1978	184.0	June 5, 1978	182.4	July 27, 1978	183.9
Dec. 6	177.4	Apr. 14	183.5				

473433118560302. Local number, 24/31-16E2.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).
DATUM.--Land-surface datum is 1,845 ft (562.4 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 424 to 456 ft (129.2 to 139.0 m), water level measured in piezometer.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 346.65 ft (105.66 m) below land-surface datum, Jan. 31, 1977; lowest measured, 393.1 ft (119.82 m) below land-surface datum, Feb. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	390.90	Feb. 14, 1978	393.1	June 5, 1978	386.9	July 27, 1978	385.85
Dec. 6	391.99	Apr. 14	388.8				

LINCOLN COUNTY--Continued

473433118560303. Local number, 24/31-16E3.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).
DATUM.--Land-surface datum is 1,845 ft (562.4 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 494 to 556 ft (150.6 to 169.5 m), water level measured in piezometer.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 345.53 ft (105.318 m) below land-surface datum, Jan. 31, 1977; lowest measured, 393.6 ft (119.97 m) below land-surface datum, Feb. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	391.02	Feb. 14, 1978	393.6	June 5, 1978	383.1	July 27, 1978	385.88
Dec. 6	392.78	Apr. 14	388.6				

473433118560304. Local number, 24/31-16E4.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).
DATUM.--Land-surface datum is 1,845 ft (562.4 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval 650 to 698 ft (198.1 to 212.8 m), water level measured in piezometer.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 346.50 ft (105.613 m) below land-surface datum, Jan. 31, 1977; lowest measured, 393.5 ft (119.94 m) below land-surface datum. Feb. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	390.90	Feb. 14, 1978	393.5	June 5, 1978	386.7	July 27, 1978	385.80
Dec. 6	392.66	Apr. 14	388.5				

473442118162201. Local number, 24/36-16A1.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 75 to 116 ft (22.9 to 35.4 m), water level measured in 10 in (250 mm) casing.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.52 ft (8.69 m) below land-surface datum, May 1, 1974; lowest measured, 46.10 ft (14.05 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	44.02	Feb. 13, 1978	38.34	June 5, 1978	35.82	July 27, 1978	36.38
Dec. 5	44.8	Apr. 17	35.85				

473442118162202. Local number, 24/36-16A2.
LOCATION.--47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 123 to 160 ft (37.5 to 48.8 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.38 ft (8.65 m) below land-surface datum, May 1, 1974; lowest measured, 46.22 ft (14.09 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1978	44.31	Feb. 13, 1978	38.1	June 5, 1978	35.81	July 27, 1978	36.36
Dec. 5	44.74	Apr. 17	35.85				

473442118162203. Local number, 24/36-16A3.
LOCATION.--47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 208 to 224 ft (63.4 to 68.3 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.24 ft (8.61 m) below land-surface datum, May 1, 1974; lowest measured, 46.25 ft (14.10 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	43.90	Feb. 13, 1978	38.3	June 5, 1978	35.83	July 27, 1978	36.39
Dec. 5	44.80	Apr. 17	35.92				

LINCOLN COUNTY--Continued

473442118162204. Local number, 24/36-16A4.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 242 to 261 ft (73.8 to 79.6 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.47 ft (8.37 m) below land-surface datum, May 1, 1974; lowest measured, 46.45 ft (14.16 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	44.06	Feb. 13, 1978	38.9	June 5, 1978	36.04	July 27, 1978	36.49
Dec. 5	44.96	Apr. 17	36.20				

473442118162205. Local number, 24/36-16A5.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 315 to 365 ft (96.0 to 111.3 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.90 ft (8.50 m) below land-surface datum, May 1, 1974; lowest measured, 50.53 ft (15.40 m) below land-surface datum, Sept. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	48.34	Feb. 13, 1978	45.9	June 5, 1978	41.75	July 27, 1978	41.26
Dec. 5	48.03	Apr. 17	41.32				

473442118162206. Local number, 24/36-16A6.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 451 to 491 ft (137.5 to 149.7 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.93 ft (10.65 m) below land-surface datum, Mar. 2, 1976; lowest measured, 66.34 ft (20.22 m) below land-surface datum, Sept. 30, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	49.22	Feb. 13, 1978	48.1	June 5, 1978	45.85	July 27, 1978	45.21
Dec. 5	49.11	Apr. 17	47.37				

473442118162207. Local number, 24/36-16A7.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 590 to 635 ft (179.8 to 193.5 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 162.47 ft (49.52 m) below land-surface datum, Mar. 22, 1972; lowest measured, 211.67 ft (64.52 m) below land-surface datum, Aug. 22, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	206.45	Feb. 13, 1978	189.7	June 5, 1978	192.5	July 27, 1978	200.43
Dec. 5	198.5	Apr. 14	185.50				

473442118162208. Local number, 24/36-16A8.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 728 to 750 ft (221.9 to 228.6 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 162.82 ft (49.65 m) below land-surface datum, Mar. 22, 1972; lowest measured, 214.77 ft (65.46 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	206.51	Feb. 13, 1978	189.7	June 5, 1978	192.6	July 27, 1978	200.46
Dec. 5	198.44	Apr. 17	185.52				

LINCOLN COUNTY--Continued

473547117493001. Local number, 24/39-1R1.
LOCATION.--Lat 47°35'47", long 117°49'30", Hydrologic Unit 17010307.
Owner: Vern Puls.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 200 ft (61.0 m), cased to 45 ft (13.7 m).
DATUM.--Land-surface datum is 2,420 ft (737.6 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.02 ft (4.27 m) below land-surface datum, Mar. 1, 1976; lowest measured, 56.00 ft (17.07 m) below land-surface datum, Sept. 7, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	30.13	Mar. 7, 1978	17.51				

474130118293001. Local number, 25/34-2G1.
LOCATION.--Lat 47°41'30", long 118°29'30", Hydrologic Unit 17020013.
Owner: Merwin Hauger.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 320 ft (97.5 m), cased to 60 ft (18.3 m).
DATUM.--Land-surface datum is 2,340 ft (713.2 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1968, March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 84.76 ft (25.84 m) below land-surface datum, Oct. 22, 1976; lowest measured, 122.0 ft (37.19 m) below land-surface datum, July 13, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	105.4	Mar. 7, 1978	95.1				

474401118471001. Local number, 26/32-21J1.
LOCATION.--Lat 47°44'01", long 118°47'10", Hydrologic Unit 17020013.
Owner: Glen Anderson.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 453 ft (138.1 m), cased to 21 ft (6.4 m).
DATUM.--Land-surface datum is 2,082 ft (634.6 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 144.0 ft (43.89 m) below land-surface datum, Mar. 16, 1972 and Oct. 18, 1976; lowest measured 298.0 ft (90.83 m) below land-surface datum, Sept. 6, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	154.	Mar. 7, 1978	149.				

474512118423001. Local number, 26/33-18G1.
LOCATION.--Lat 47°45'12", long 118°42'30", Hydrologic Unit 17020013.
Owner: City of Wilbur.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 450 ft (137.2 m), cased to 50 ft (15.2 m).
DATUM.--Land-surface datum is 2,245 ft (684.3 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.09 ft (14.96 m) below land-surface datum, Apr. 6, 1971; lowest measured, 85.5 ft (26.06 m) below land-surface datum, July 13, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1977	76.42	Mar. 7, 1978	59.73				

OKANOGAN COUNTY

484033119310302. Local number, 37/26-26J1.
LOCATION.--Lat 48°40'33", long 119°31'03", Hydrologic Unit 17020006.
Owner: Plateau Orchards, Inc.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 10 in (250 mm), depth 90 ft (27.4 m), cased to 90 ft (27.4 m).
DATUM.--Land-surface datum is 1,431.84 ft (436.425 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--July 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.38 ft (16.58 m) below land-surface datum, Apr. 23, 1975; lowest dry, water level not measureable, Aug. 25, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 7, 1977	32.72	Jan. 31, 1978	57.22	May 15, 1978	56.05	July 10, 1978	58.50
Dec. 8	58.03	Mar. 21	55.88				

OKANOGAN COUNTY--Continued

484312119521301. Local number, 37/26-10H1.
LOCATION.--Lat 48°43'12", long 119°52'13", Hydrologic Unit 17020006.
Owner: Loy McDaniel.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 10 in (250 mm), depth 95 ft (29.0 m).
DATUM.--Land-surface datum is 1,450 ft (442.0 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 73.48 ft (22.40 m) below land-surface datum, Apr. 23, 1975; lowest measured, 104.18 ft (31.75 m) below land-surface datum, July 29, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 7, 1977	80.83	Jan. 31, 1978	78.67	May 15, 1978	78.04	July 10, 1978	80.39
Dec. 8	79.05	Mar. 21	78.17				

SPOKANE COUNTY

471547117402301. Local number, 21/41-31R1.
LOCATION.--Lat 47°15'47", long 117°40'23", Hydrologic Unit 17060109.
Owner: Osborn Belsby.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled stock-supply artesian well, diameter 10 in (250 mm), depth 120 ft (36.6 m).
DATUM.--Land-surface datum is 2,070 ft (630.9 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--February 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.65 ft (0.20 m) above land-surface datum, Apr. 22, 1969; lowest measured, 16.36 ft (4.99 m) below land-surface datum, Oct. 24, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1977	10.48	Mar. 6, 1978	*0.40				

472540117224501. Local number, 22/43-4F1.
LOCATION.--Lat 47°25'40", long 117°22'45", Hydrologic Unit 17010306 at Spangle.
Owner: Town of Spangle.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-table well, depth 150 ft (45.7 m).
DATUM.--Land-surface datum is 2,440 ft (743.7 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--February 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.83 ft (7.26 m) below land-surface datum, Apr. 24, 1969; lowest measured, 132.4 ft (40.36 m) below land-surface datum, July 10, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1977	39.52	Mar. 6, 1978	28.18				

472804117403401. Local number, 23/41-19R1.
LOCATION.--Lat 47°28'04", long 117°40'34", Hydrologic Unit 17060108.
Owner: F. M. Steele.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 516 ft (157.3 m), cased to 24 ft (7.3 m).
DATUM.--Land-surface datum is 2,365 ft (720.9 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--June 1956, February 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.0 ft (16.46 m) below land-surface datum, June 24, 1956; lowest measured, 103.7 ft (31.61 m) below land-surface datum, Sept. 2, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1977	110.6	Mar. 6, 1978	101.1				

473240117261901. Local number, 24/42-25G1.
LOCATION.--Lat 47°32'40", long 117°26'19", Hydrologic Unit 17010306.
Owner: Henry F. Mindrup.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 135 ft (41.1 m), cased to 25 ft (7.6 m).
DATUM.--Land-surface datum about 2,320 ft (707.1 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--February 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.29 ft (5.58 m) below land-surface datum, May 6, 1969; lowest measured, 52.39 ft (15.97 m) below land-surface datum, Sept. 19, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1977	42.7	Mar. 29, 1978	20.8	Apr. 24, 1978	20.8		

* Water levels above land surface.

SPOKANE COUNTY--Continued

473607117322801. Local number, 24/42-6J1.
LOCATION.--Lat 47°36'07", long 117°32'28", Hydrologic Unit 17010306.
Owner: Robert Welsh.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 115 ft (35.1 m), cased to 60 ft (18.3 m).
DATUM.--Land-surface datum about 2,395 ft (730.0 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.01 ft (10.67 m) below land-surface datum, Mar. 24, 1975; lowest measured, 42.65 ft (13.00 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	41.71	Mar. 29, 1978	39.0	Apr. 24, 1978	38.8		

473924117130001. Local number, 25/44-23D1.
LOCATION.--Lat 47°39'24", long 117°13'00", Hydrologic Unit 17010305, at U.S. Highway 10 and Evergreen Road.
Owner: Mr. Boisevert.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 48 to 18 in (1,200 to 450 mm), depth 97 ft (29.6 m), lined with brick to 97 ft (29.6 m).
DATUM.--Land-surface datum is 2,016.74 ft (614.702 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1931 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 77.85 ft (23.73 m) below land-surface datum, Apr. 8, 1950; lowest measured, 95.40 ft (29.08 m) below land-surface datum, Dec. 8, 1931.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1977	92.53	Jan. 26, 1978	88.83	Apr. 24, 1978	85.30	July 20, 1978	89.76
Nov. 22	92.24	Mar. 29	87.11	June 21	87.21	Sept. 18	91.58
Dec. 22	87.51						

473849117275401. Local number, 25/42-14L01.
LOCATION.--Lat 47°39'40", long 117°27'54", Hydrologic Unit 17010307.
Owner: Riverside Memorial Park.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 72 mi (1,800 mm), depth 110 ft (33.5 m), lined with concrete to 82 ft (25.0 m), perforated 82 to 100 ft (25.0 to 30.5 m).
DATUM.--Land-surface datum about 1,787 ft (544.7 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Water levels used in monthly Water Resources Review.
PERIOD OF RECORD.--December 1941 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 81.73 ft (24.91 m) below land-surface datum, June 7, 1948; lowest measured, 101.96 ft (31.08 m) below land-surface datum, Sept. 24, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 17, 1977	98.38	Jan. 20, 1978	94.04	Apr. 24, 1978	91.17	July 20, 1978	94.64
Nov. 22	97.73	Feb. 23	94.13	May 24	90.98	Sept. 20	96.85
Dec. 22	93.47	Mar. 21	93.89	June 21	93.24		

474011117072901. Local number, 25/45-16C1.
LOCATION.--Lat 47°40'11", long 117°07'29", Hydrologic Unit 17010305.
Owner: Inland Empire Paper Company.
AQUIFER.--Glacial sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug unused irrigation water-table well, diameter 96 in (2,400 mm), depth 129 ft (39.3 m), lined with gunite cement to 129 ft (39.3 m).
DATUM.--Land-surface datum is 2,060.4 ft (628.01 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1929 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 84.56 ft (25.77 m) below land-surface datum, June 17, 1953; lowest measured, 114.53 ft (34.91 m) below land-surface datum, Dec. 8, 1931.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1977	109.62	Jan. 26, 1978	106.17	Apr. 24, 1978	102.92	July 20, 1978	106.48
Nov. 22	109.48	Mar. 29	104.90	June 21	104.21	Sept.14	108.33
Dec. 22	105.95						

474224117075901. Local number, 26/45-32J2.
LOCATION.--Lat 47°42'24", long 117°07'59", Hydrologic Unit 17010305, Otis Orchards.
Owner: R. L. McVicker.
AQUIFER.--Glacial sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused irrigation water-table well, diameter 8 in (200 mm), depth 155 ft (47.2 m), cased to 155 ft (47.2 m), perforated from 132 to 154 ft (40.2 to 47.0 m).
DATUM.--Land-surface datum about 2,080 ft (634 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 116.14 ft (35.40 m) below land-surface datum, June 15, 1961; lowest measured, 135.26 ft (41.23 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1977	133.86	Jan. 26, 1978	130.7	Apr. 24, 1978	127.5	July 20, 1978	132.1B
Nov. 22	134.0	Mar. 29	129.4	June 21	129.9	Sept.14	132.6
Dec. 22	129.71						

B Well recently pumped.

SPOKANE COUNTY--Continued

474456117245501. Local number, 26/45-19A1.
LOCATION.--Lat 47°44'36", long 117°24'55", Hydrologic Unit 17010308.
Owner: Whitworth Water District No. 2.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug public-supply and irrigation water-table well, diameter 78 in (1,950 mm), depth 162 ft (49.4 m), lined with concrete to 162 ft (49.4 m).
DATUM.--Land-surface datum is 1,935.91 ft (590.065 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--November 1930 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 133.72 ft (40.758 m) below land-surface datum Mar. 15, 1934; lowest measured, 149.47 ft (45.56 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 26, 1977	139.66	Jan. 26, 1978	132.90	Apr. 24, 1978	137.02	July 19, 1978	138.13A
Nov. 22	139.27	Mar. 20	137.00	June 21	139.25A	Sept.18	139.7A
Dec. 22	138.80						

STEVENS COUNTY

475525117465301. Local number, 28/40-17J1.
LOCATION.--Lat 47°55'25", long 117°46'53", Hydrologic Unit 17010307, at Ford.
Owner: R. J. Seagle.
AQUIFER.--Alluvial sand and gravel of Holocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 36 in (900 mm), depth 20 ft (6.1 m), lined with concrete to 20 ft (6.1 m).
DATUM.--Land-surface datum about 1,790 ft (545.6 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.45 ft (0.14 m) below land-surface datum, Jan. 23, 1974; lowest measured, 19.05 ft (5.81 m) below land-surface datum, Dec. 15, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 3, 1977	18.45	Jan. 30, 1978	16.40	June 15, 1978	7.81	Sept. 5, 1978	15.77
Nov. 28	18.55	Mar. 20	7.55				

WALLA WALLA COUNTY

460014118281801. Local number, 6/35-18A1.
LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 275 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).
DATUM.--Land-surface datum is 670 ft (204 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 90 to 230 ft (27.4 to 70.1 m), water level measured in 12 in (300 mm) diameter casing.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.40 ft (7.74 m) below land-surface datum, Apr. 1, 1974; lowest measured, 45.70 ft (13.93 m) below land-surface datum, Jan. 27, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1977	28.1	Jan. 26, 1978	25.2	May 23, 1978	27.0	Sept. 21, 1978	31.4
Nov. 29	26.1	Mar. 21	25.5	July 26	35.6		

460014118281802. Local number, 6/35-18A2.
LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 275 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).
DATUM.--Land-surface datum is 670 ft (204 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 710 to 730 ft (216.4 to 222.5 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 144.20 ft (43.95 m) below land-surface datum, Apr. 1, 1974; lowest measured, 200.8 ft (61.20 m) below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1977	200.8	Jan. 26, 1978	169.8	May 23, 1978	183.9	Sept. 21, 1978	173.5
Nov. 29	186.1	Mar. 21	158.3	July 26	178.2		

A Well being pumped.

WALLA WALLA COUNTY--Continued

460014118281803. Local number, 6/35-18A3.
LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 275 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).
DATUM.--Land-surface datum is 670 ft (204 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 740 to 1,204 ft (225.6 to 337.0 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 145.10 ft (44.23 m) below land-surface datum, Apr. 1, 1974; lowest measured, 201.0 ft (61.26 m) below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1977	201.0	Jan. 26, 1978	170.0	May 23, 1978	184.0	Sept. 21, 1978	173.6
Nov. 29	186.4	Mar. 21	158.5	July 26	176.4		

460014118281804. Local number, 6/35-18A4.
LOCATION.--46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 275 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).
DATUM.--Land-surface datum is 670 ft (204 m) National Geodetic Vertical Datum of 1929.
REMARKS.--Monitored depth interval from 1,216 to 1,308 ft (370.6 to 398.7 m), water level measure in piezometer.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 145.60 ft (44.38 m) below land-surface datum, Apr. 1, 1974; lowest measured, 201.9 ft (61.54 m) below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1977	201.9	Jan. 26, 1978	171.2	May 23, 1978	185.0	Sept. 21, 1978	174.5
Nov. 29	187.4	Mar. 21	159.5	July 26	179.4		

460020118225701. Local number, 6/35-12N1.
LOCATION.--Lat 46°00'20", long 118°22'57", Hydrologic Unit 17010305.
Owner: Wynn Estes.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 10 to 8 in (250 to 200 mm), depth 590 ft (179.8 m), cased to 495 ft (150.9 m).
DATUM.--Land-surface datum about 768 ft (234.1 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1955 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 57.4 ft (17.5 m) above land-surface datum, Mar 21, 1978; lowest measured, 91.7 ft (27.95 m) below land-surface datum, Oct. 19, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1977	91.7	Mar. 21, 1978	57.4				

460238118225301. Local number, 7/35-36F1.
LOCATION.--Lat 46°02'38", long 118°22'53", Hydrologic Unit 17070102, at College Place.
Owner: College Place Water Company.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply artesian well, diameter 8 in (200 mm), depth 810 ft (246.9 m).
DATUM.--Land-surface datum is 796 ft (242.6 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--March 1948, April 1955 to February 1957, October 1959 to October 1962, March 1964 to November 1973, October 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.0 ft (11.28 m) above land-surface datum, Mar. 18, 1948; lowest measured, 146.2 ft (44.56 m) below land-surface datum, Oct. 29, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1977	137.0	Mar. 28, 1978	96.5				

460335118172301. Local number, 7/36-27G1.
LOCATION.--Lat 46°03'35", long 118°17'23", Hydrologic Unit 17010305.
Owner: Rudolph Depping.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 10 to 8 in (250 to mm), depth 450 ft (137.2 m), cased to 357 ft (108.8 m).
DATUM.--Land surface datum about 1,100 ft (335 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1955 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.0 ft (0.61 m) above land-surface datum, Apr. 19, 1956; lowest measured, 60 ft (18.3 m) below land-surface datum, Nov. 29, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1977	52.0	Mar. 21, 1978	43.0				

WALLA WALLA COUNTY--Continued

460541118350701. Local number, 7/34-29C1.
LOCATION.--Lat 46°05'41", long 118°35'07", Hydrologic Unit 17010305.
Owner: Lowden A. Johnson.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 to 6 in (300 to 150 mm), depth 1,201 ft (366.1 m), cased to 610 ft (185.9 m).
DATUM.--Land-surface datum about 505 ft (153.9 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--October 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 68 ft (20.7 m) below land-surface datum, Mar. 3, 1966; lowest measured, 116.8 ft (35.60 m) below land-surface datum, Sept. 25, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1977	116.59	Mar. 21, 1978	100.4				

460457118200901. Local number, 7/36-17L1.
LOCATION.--Lat 46°04'57", long 118°20'09", Hydrologic Unit 17070102, Veteran's Memorial Park.
Owner: City of Walla Walla.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 to 8 in (300 to 200 mm), depth 2,728 ft (831.5 m), cased to 2,155 ft (656.8 m).
DATUM.--Land-surface datum about 1,010 ft (308 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.51 ft (15.09 m) below land-surface datum, May 10, 1960; lowest measured, 166.70 ft (50.81 m) below land-surface datum, Aug. 2, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1977	163.5	Mar. 21, 1978	158.7				

WHITMAN COUNTY

461625117054501. Local number, 13/45-15L2.
LOCATION.--Lat 46°36'25", long 117°05'45", Hydrologic Unit 17060108.
Owner: Alfred Druffel.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 190 ft (57.9 m), lined with steel to 60 ft (18.3 m).
DATUM.--Land-surface datum about 2,680 ft (817 m) National Geodetic Datum of 1929.
PERIOD OF RECORD.--May 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 71.95 ft (21.93 m) below land-surface datum, Mar. 24, 1964; lowest measured, 78.70 ft (23.99 m) below land-surface datum, Oct. 10, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1977	77.1	Mar. 6, 1978	76.1				

464545117151701. Local number 14/44-1E1.
LOCATION.--Lat 46°45'45", long 117°15'17", Hydrologic Unit 17060108, near Pullman.
Owner: R. Harlow.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 375 ft (114.3 m).
DATUM.--Land-surface datum about 2,565 ft (781.8 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--August 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 164.5 ft (50.14 m) below land-surface datum, May 31, 1978; lowest measured, 271.00 ft (82.60 m) below land-surface datum, Aug. 21, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1977	251.6	Feb. 9, 1978	177.8	May 31, 1978	164.5	July 24, 1978	165.1
Dec. 6	251.2	Apr. 6	164.6				

464549117101101. Local number, 14/45-5F1.
LOCATION.--Lat 46°45'49", long 117°10'11", Hydrologic Unit 17060108, Pullman.
Owner: Washington State University, well No. 1.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 4 in (100 mm), depth 145 ft (44.2 m), cased.
DATUM.--Land-surface datum is 2,364.4 ft (720.7 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--March 1935 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.52 ft (5.95 m) below land-surface datum, Mar. 19, 1935; lowest measured, 83.8 ft (25.54 m) below land-surface datum, July 24, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1977	81.4	Feb. 8, 1978	83.7	May 31, 1978	83.0B	July 24, 1978	83.8
Dec. 6	82.5	Apr. 6	82.3B				

B Well recently pumped.

WHITMAN COUNTY--Continued

464408117103202. Local number, 15/45-32N2.
LOCATION.--Lat 46°44'08", long 117°10'32", Hydrologic Unit 17060108, Richie and Grand Street, Pullman.
Owner: City of Pullman, well No. 4.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply artesian well, diameter 16 to 12 in (400 to 300 mm), depth 954 ft (290.8 m), cased to 399 ft (121.6 m).
DATUM.--Land-surface datum about 2,356 ft (718.1 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--April 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.98 ft (7.92 m) below land-surface datum, May 24, 1960; lowest measured, 134.1 ft (40.87 m) below land-surface datum, Dec. 6, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1977	116.15A	Dec. 6, 1977	134.1A	June 2, 1978	64.8	July 24, 1978	65.6

464408117103203. Local number, 15/45-32N3.
LOCATION.--Lat 46°44'08", long 117°10'32", Hydrologic Unit 17060108, at Pullman.
Owner: City of Pullman.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (500 mm), depth 238 ft (72.5 m), cased to 238 ft (72.5 m).
DATUM.--Land-surface datum, is 2,356 ft (718.1 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--December 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.32 ft (7.42 m) below land-surface datum, Dec. 16, 1957; lowest measured, 66.4 ft (20.24 m) below land-surface datum, July 24, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1977	64.6	Feb. 8, 1978	63.3	June 2, 1978	65.1	July 24, 1978	66.4
Dec. 6	64.0	Apr. 6	64.2				

465800117343001. Local number, 17/42-18M1.
LOCATION.--Lat 46°58'00", long 117°34'30", Hydrologic Unit 17060108, near Thera.
Owner: Phil Smick.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 204 ft (62.2 m).
DATUM.--Land-surface datum about 2,035 ft (620.3 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--December 1954 to August 1956, April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 144.65 ft (44.09 m) below land-surface datum, Apr. 6, 1972; lowest measured, 165.2 ft (50.35 m) below land-surface datum, July 3, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1977	163.4	Mar. 6, 1978	146.5				

470452117414401. Local number, 18/41-6L1.
LOCATION.--Lat 47°04'52", long 117°41'44", Hydrologic Unit 17060109.
Owner: Lyle Harwood.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 575 ft (175.3 m).
DATUM.--Land-surface datum is 1,940 ft (591.3 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 46.9 ft (14.30 m) below land-surface datum, Mar. 14, 1968; lowest measured, 474 ft (144.5 m) below land-surface datum, Mar. 23, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1977	85.44	Mar. 6, 1978	79.66				

470707117040502. Local number, 19/45-25G2.
LOCATION.--Lat 47°07'07", long 117°04'05", Hydrologic Unit 17060109.
Owner: Bert Lehn.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 134 ft (40.8 m).
DATUM.--Land-surface datum about 2,600 ft (792.5 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--December 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.49 ft (5.03 m) below land-surface datum, Feb. 27, 1968; lowest measured, 42.83 ft (13.06 m) below land-surface datum, Dec. 22, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1977	42.22	Mar. 6, 1978	22.27				

A Well being pumped.

WHITMAN COUNTY--Continued

470718117232801. Local number, 19/43-28B1.
LOCATION.--Lat 47°07'18", long 117°23'28", Hydrologic Unit 17060109, near Thornton.
Owner: McGregor Co.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled industrial artesian well, diameter 8 in (200 mm), depth 84 ft (25.6 m).
DATUM.--Land-surface datum about 2,290 ft (698.0 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.14 ft (3.70 m) above land-surface datum, Mar. 5, 1976; lowest measured, 2.0 ft (0.61 m) above land-surface datum, Oct. 29, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1977	+8.56	Mar. 6, 1978	+9.75				

471415117510801. Local number, 20/39-12N1.
LOCATION.--Lat 47°14'13", long 117°51'08", Hydrologic Unit 17060109, near Lamont.
Owner: Earl Swift.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 10 in (250 mm), depth 284 ft (86.6 m).
DATUM.--Land-surface datum about 2,110 ft (643.1 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 159.7 ft (48.68 m) below land-surface datum, Nov. 5, 1975; lowest measured, 178.86 ft (54.52 m) below land-surface datum, Oct.12, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 12, 1977	178.86	Mar. 6, 1978	166.27				

YAKIMA COUNTY

461934120003701. Local number, 10/22-25F1.
LOCATION.--Lat 46°19'54", long 120°00'37", Hydrologic Unit 17030003, at Sunnyside.
Owner: City of Sunnyside.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-level well, diameter 16 in (400 mm), depth 1,570 ft (478.5 m), cased to 1,283 ft (391.1 m).
DATUM.--Land-surface datum is about 745 ft (227.1 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--May 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.7 ft (6.00 m) below land-surface datum, Jan. 2, 1974; lowest measured, 122.0 ft (37.19 m) below land-surface datum, July 31, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 6, 1977	61.93	Mar. 14, 1978	57.92	July 27, 1978	67.5	Sept. 21, 1978	66.3
Jan. 11, 1978	59.7	June 19	65.1				

460502120095801. Local number, 12/21-27A1.
LOCATION.--Lat 46°50'22", long 120°09'58", Hydrologic Unit 17030003, Moxee Plant Quarantine Station.
Owner: Washington Department of Agriculture.
AQUIFER.--Sand of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 to 10 in (300 to 250 mm), depth 295 ft (89.9 m), cased to 295 ft (89.9 m), perforated 193 to 295 ft (58.8 to 89.9 m).
DATUM.--Land-surface datum about 1,555 ft (474.0 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--May 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 200 ft (61.0 m) below land-surface datum, Jan. 15, 1966, Feb. 24, 1966, Mar. 28, 1966, Apr. 28, 1967; lowest measured, 241 ft (73.5 m) below land-surface datum, Oct. 6, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
May 1, 1978	236.3						

460120120462002. Local number, 12/16-13D2.
LOCATION.--46°32'00", long 120°46'20", Hydrologic Unit 17030003.
Owner: Herke Brothers.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled test water-table well, diameter 8 in (200 mm), depth 130 ft (39.6 m).
DATUM.--Land-surface datum about 1,800 ft (549 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--March 1951 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.37 ft (15.35 m) below land-surface datum, June 15, 1951; lowest measured, 124.7 ft (38.01 m) below land-surface datum, Sept. 9, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 3, 1977	112.9B	May 4, 1978	109.8B	June 28, 1978	111.3B		

\+ Water levels above land surface.
B Well being pumped.

YAKIMA COUNTY--Continued

463201120413002. Local number, 12/17-16A2.
LOCATION.--Lat 46°32'01", long 120°41'30", Hydrologic Unit 17030003, near Wiley City.
Owner: Robert Wiley.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 12 in (300 mm), depth 868 ft (264.6 m), cased to 532 ft (162.2 m).
DATUM.--Land-surface datum about 1,465 ft (446.5 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--February 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 123.0 ft (37.49 m) above land-surface datum, Mar. 29, 1968; lowest measured, 81.5 ft (24.84 m) below land-surface datum, Mar. 24, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 2, 1978	+40						

463210120523001. Local number, 12/16-18C1.
LOCATION.--Lat 46°32'10", long 120°52'30", Hydrologic Unit 17030003, near Tampico.
Owner: Mandor-Hazen.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 14 in (350 mm), depth 287 ft (87.5 m), cased to 80 ft (24.4 m).
DATUM.--Land-surface datum about 2,200 ft (670.6 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--May 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.55 ft (1.39 m) below land-surface datum, July 21, 1972; lowest measured, 238.2 ft (72.60 m) below land-surface datum, Aug. 2, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 29, 1977	19.6	Mar. 2, 1978	9.2	May 4, 1978	13.2		

463212120432301. Local number, 12/17-17C1.
LOCATION.--Lat 46°32'12", long 120°43'23", Hydrologic Unit 17030003.
Owner: R. C. Cornelius.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 8 in (200 mm), depth 243 ft (74.1 m), cased to 166 ft (50.6 m).
DATUM.--Land-surface datum about 1,562 ft (476.1 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--June 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.60 ft (0.79 m) above land-surface datum, May 22, 1962; lowest measured, 118.6 ft (36.15 m) below land-surface datum, Sept. 9, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 2, 1978	41.0						

463226120412901. Local number, 12/17-9J3.
LOCATION.--Lat 46°32'26", long 120°41'29", Hydrologic Unit 17030003.
Owner: Walter McInnes.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (100 mm), depth 479 ft (146.0 m), cased to 430 ft (131.1 m).
DATUM.--Land-surface datum about 1,460 ft (445 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--January 1953 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 66.80 ft (20.36 m) below land-surface datum, July 20, 1953; lowest measured, 186.8 ft (56.94 m) below land-surface, Sept. 9, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 29, 1977	165.1A	Mar. 2, 1978	156.2	June 28, 1978	140.5		

464023120423401. Local number, 14/17-28L1.
LOCATION.--Lat 46°40'23", long 120°42'34", Hydrologic Unit 17030002, at Cowiche.
Owner: Robert Tate.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 82 ft (25.0 m).
DATUM.--Land-surface datum is 1,738 ft (529.7 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--May 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.1 ft (4.91 m) below land-surface datum, Oct. 24, 1974; lowest measured, 24.2 ft (7.38 m) below land-surface datum, Aug. 2, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 1, 1977	20.5	Mar. 1, 1978	17.6	June 27, 1978	23.1	Aug. 21, 1978	19.1
Dec. 28	20.4	May 4	18.8				

\+ Water levels above land surface.
A Well being pumped.

YAKIMA COUNTY--Continued

464445120360001. Local number, 15/18-32K3.
LOCATION.--Lat 46°44'45", long 120°36'00", Hydrologic Unit 17030001.
Owner: Wenas Valley Grange.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled institutional water-table well, diameter 8 to 6 in (200 to 150 mm), depth 85 ft (25.9 m), cased.
DATUM.--Land-surface datum about 1,460 ft (445 m) National Geodetic Vertical Datum of 1929.
PERIOD OF RECORD.--June 1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.73 ft (11.50 m) below land-surface datum, Oct. 23, 1957; lowest measured, 74.14 ft (22.60 m) below land-surface datum, Nov. 6, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 1, 1977	50.8	Feb. 28, 1978	47.7	June 27, 1978	47.8	Aug. 21, 1978	49.7
Dec. 28	49.5						

BENTON COUNTY

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO BOT-TOM OF SAMPLE INTER-VAL (FT)	DEPTH TO TOP OF SAMPLE INTER-VAL (FT)
11/28E-05C01	462826119195901	46 28 26	119 19 59	01	78-04-19	0925	245	--	--
11/28E-18M01	462619119213701	46 26 19	119 21 37	01	78-04-19	0810	294	281	188
12/26E-08P01	463200119304701	46 32 11	119 35 17	01	78-04-18	1450	322	322	280
12/26E-13M01	463146119293901	46 31 46	119 29 39	01	78-04-20	1015	126	119	109
12/26E-14D01	463200119315001	46 32 00	119 31 50	01	78-04-20	1130	385	382	324
12/26E-15C01	463155119325201	46 31 55	119 32 52	01	78-04-20	1235	440	440	315
12/26E-18G01	463150119362001	46 31 44	119 36 23	01	78-04-18	1355	280	280	207
12/27E-15G01	463138119244801	46 31 38	119 24 48	01	78-04-19	1210	171	169	111
12/27E-16M02	463124119265601	46 31 24	119 26 56	01	78-04-19	1310	212	212	135
12/27E-19D02	463057119291401	46 30 57	119 29 14	01	78-04-19	1415	253	253	150
12/27E-31Q01	462844119284301	46 28 44	119 28 43	01	78-04-20	0910	160	160	110
12/28E-19F01	463049119213201	46 30 49	119 21 32	01	78-04-17	0930	80	80	67
13/25E-16J01	463644119372001	46 36 49	119 41 05	01	78-04-18	1130	140	147	95
13/25E-25R01	463531119374001	46 35 31	119 37 40	01	78-04-18	1245	192	192	141
13/26E-14R01	463710119391601	46 37 04	119 31 30	01	78-04-18	0900	125	125	55
13/26E-26R03	463528119312801	46 35 28	119 31 28	01	78-04-17	1320	60	59	35
13/26E-34C01	463432119325001	46 34 32	119 32 50	01	78-04-17	1440	149	135	125
13/27E-28Q01	463439119260801	46 34 39	119 26 08	01	78-04-19	1100	167	156	146
13/27E-34R01	463357119243001	46 33 57	119 24 30	01	78-04-17	1115	297	220	133
14/26E-14M03	464201119320801	46 42 00	119 31 55	01	78-04-18	1015	80	79	35

LOCAL IDENT-I-FIER	DATE OF SAMPLE	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	PUMP OR FLOW PERIOD PRIOR TO SAM-PLING (MIN)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
11/28E-05C01	78-04-19	442.00	--	348	7.8	17.4	1	0	140	5
11/28E-18M01	78-04-19	547.00	10	390	8.0	18.2	1	0	150	23
12/26E-08P01	78-04-18	726.00	30	400	7.8	21.2	3	25	160	21
12/26E-13M01	78-04-20	516.00	30	415	7.9	19.7	4	2	150	34
12/26E-14D01	78-04-20	737.00	45	424	7.8	21.1	1	0	190	23
12/26E-15C01	78-04-20	717.00	30	430	7.8	21.2	4	4	180	3
12/26E-18G01	78-04-18	667.00	30	340	7.7	20.8	1	3	140	27
12/27E-15G01	78-04-19	518.00	30	526	7.9	18.4	2	2	190	81
12/27E-16M02	78-04-19	529.00	30	454	7.9	20.5	1	1	160	46
12/27E-19D02	78-04-19	559.00	--	418	7.9	19.2	1	1	160	25
12/27E-31Q01	78-04-20	515.00	30	300	7.8	19.0	5	2	130	0
12/28E-19F01	78-04-17	466.00	30	450	7.9	16.4	1	0	190	65
13/25E-16J01	78-04-18	510.00	30	320	7.8	17.4	1	1	140	20
13/25E-25R01	78-04-18	583.00	30	350	8.5	17.7	2	150	140	90
13/26E-14R01	78-04-18	467.00	30	272	8.0	17.7	1	1	100	0
13/26E-26R03	78-04-17	444.00	30	230	7.9	16.4	1	1	110	2
13/26E-34C01	78-04-17	530.00	45	612	9.4	17.6	2	20	190	130
13/27E-28Q01	78-04-19	537.00	30	290	7.8	19.2	1	1	120	0
13/27E-34R01	78-04-17	522.00	30	388	8.0	17.2	1	1	170	43
14/26E-14M03	78-04-18	449.00	30	320	7.8	32.5	2	2	140	74

LOCAL IDENT-I-FIER	DATE OF SAMPLE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)
11/28E-05C01	78-04-19	33	13	22	25	.8	6.5	160	0	130
11/28E-18M01	78-04-19	42	12	22	23	.8	6.9	160	0	130
12/26E-08P01	78-04-18	43	13	20	21	.7	5.9	170	0	140
12/26E-13M01	78-04-20	38	13	29	29	1.0	6.4	140	0	110
12/26E-14D01	78-04-20	50	15	21	19	.7	5.9	200	0	160
12/26E-15C01	78-04-20	47	14	24	22	.8	6.0	210	0	170
12/26E-18G01	78-04-18	37	12	18	21	.7	4.5	140	0	110
12/27E-15G01	78-04-19	52	14	30	25	1.0	6.9	130	0	110
12/27E-16M02	78-04-19	43	13	30	28	1.0	7.2	140	0	110
12/27E-19D02	78-04-19	46	12	23	22	.8	6.7	170	0	140
12/27E-31Q01	78-04-20	34	11	17	21	.6	6.0	170	0	140
12/28E-19F01	78-04-17	54	13	20	18	.6	6.7	150	0	120
13/25E-16J01	78-04-18	36	13	11	14	.4	4.7	150	0	120
13/25E-25R01	78-04-18	41	8.1	14	18	.5	5.9	56	0	46
13/26E-14R01	78-04-18	26	9.2	19	27	.8	5.4	140	0	110
13/26E-26R03	78-04-17	29	8.8	6.0	10	.3	4.7	130	0	110
13/26E-34C01	78-04-17	62	7.7	44	32	1.4	12	59	5	57
13/27E-28Q01	78-04-19	31	11	22	27	.9	4.2	160	0	130
13/27E-34R01	78-04-17	40	16	21	21	.7	4.9	150	0	120
14/26E-14M03	78-04-18	46	6.9	5.2	7	.2	5.0	85	0	70

BENTON COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)	IODIDE, DIS-SOLVED (MG/L AS I)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, DIS-SOLVED (MG/L)
11/28E-05C01	78-04-19	4.1	34	7.7	.4	.1	.08	36	225	280
11/28E-18M01	78-04-19	2.6	45	11	.4	.1	.01	37	251	370
12/26E-08P01	78-04-18	4.3	27	11	.4	.1	.01	38	256	360
12/26E-13H01	78-04-20	2.8	52	14	.7	.1	.00	39	273	370
12/26E-14D01	78-04-20	5.1	47	8.2	.5	.1	.00	40	278	380
12/26E-15C01	78-04-20	5.3	33	7.8	.5	.1	.00	42	261	380
12/26E-18G01	78-04-18	4.5	25	13	.5	.1	.01	43	223	330
12/27E-15G01	78-04-19	2.6	61	14	.4	.1	.01	30	325	430
12/27E-16M02	78-04-19	2.8	54	10	.7	.1	.00	42	299	400
12/27E-19D02	78-04-19	3.4	55	7.5	.5	.1	.01	35	267	360
12/27E-31Q01	78-04-20	4.3	20	4.2	.5	.1	.01	47	202	220
12/28E-19F01	78-04-17	3.0	49	11	.3	.1	.01	34	302	390
13/25E-16J01	78-04-18	3.8	28	9.1	.4	.1	.00	42	205	300
13/25E-25R01	78-04-18	.3	85	21	.4	.5	.01	8.8	206	260
13/26E-14R01	78-04-18	2.2	15	6.3	1.0	.1	.00	37	171	260
13/26E-26R03	78-04-17	2.6	12	2.7	.2	.1	.00	23	139	190
13/26E-34C01	78-04-17	.0	180	25	.5	.3	.00	29	381	480
13/27E-28Q01	78-04-19	4.1	28	8.4	.6	.1	.01	37	203	290
13/27E-34R01	78-04-17	2.4	54	12	.5	.1	.01	33	243	350
14/26E-14M03	78-04-18	2.2	51	11	.2	.1	.00	39	210	270

LOCAL IDENT-I-FIER	DATE OF SAMPLE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	CHRO-MIUM, HEXA-VALENT, DIS. (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)
11/28E-05C01	78-04-19	232	.31	2.0	.02	.02	.02	14	0	0
11/28E-18M01	78-04-19	255	.34	3.0	.00	.02	.03	8	7	0
12/26E-08P01	78-04-18	242	.35	5.6	.02	.17	.09	4	21	0
12/26E-13H01	78-04-20	261	.37	6.0	.01	.03	.03	6	3	0
12/26E-14D01	78-04-20	286	.38	2.4	.01	.04	.04	6	5	0
12/26E-15C01	78-04-20	278	.36	2.4	.01	.08	.04	6	6	0
12/26E-18G01	78-04-18	222	.30	4.2	.00	.02	.08	5	55	0
12/27E-15G01	78-04-19	273	.44	16	.00	.04	.02	5	5	0
12/27E-16M02	78-04-19	269	.41	11	.01	.02	.03	9	5	0
12/27E-19D02	78-04-19	270	.36	3.0	.00	.02	.03	7	3	0
12/27E-31Q01	78-04-20	224	.27	.00	.01	.04	.04	4	0	0
12/28E-19F01	78-04-17	262	.41	13	.00	.01	.02	9	9	0
13/25E-16J01	78-04-18	218	.28	1.3	.01	.01	.02	4	0	0
13/25E-25R01	78-04-18	212	.28	.37	.01	.44	.38	2	2	0
13/26E-14R01	78-04-18	188	.23	.32	.00	.02	.04	14	0	0
13/26E-26R03	78-04-17	151	.19	.16	.00	.02	.05	6	0	0
13/26E-34C01	78-04-17	395	.52	3.7	.03	.20	.06	11	0	0
13/27E-28Q01	78-04-19	221	.28	.72	.00	.04	.02	7	5	0
13/27E-34R01	78-04-17	255	.33	2.8	.00	.01	.02	5	0	0
14/26E-14M03	78-04-18	206	.29	3.3	.02	.08	.04	4	290	0

LOCAL IDENT-I-FIER	DATE OF SAMPLE	IRON, FERROUS DIS-SOLVED (UG/L AS FE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	CESIUM 137 DIS-SOLVED (PCI/L)	STRON-TIUM 90 DIS-SOLVED (PCI/L)	TRITIUM TOTAL (PCI/L)	CYANIDE TOTAL (MG/L AS CN)
11/28E-05C01	78-04-19	10	1	11	8.1	7.1	<2.0	<.4	170000	.00
11/28E-18M01	78-04-19	10	2	<4.1	16	13	<2.0	<.4	73000	.00
12/26E-08P01	78-04-18	0	5	8.2	11	9.1	<2.0	<.4	800000	.00
12/26E-13H01	78-04-20	10	2	14	41	35	<2.0	<.4	310000	.01
12/26E-14D01	78-04-20	0	3	8.5	6.0	5.1	<2.0	<.4	<480	.00
12/26E-15C01	78-04-20	10	2	7.8	6.9	5.8	<2.0	<.4	<480	.00
12/26E-18G01	78-04-18	0	3	<3.9	6.9	5.9	<2.0	<.4	200000	.00
12/27E-15G01	78-04-19	0	1	<5.1	160	130	2.0	<.4	1400000	.02
12/27E-16M02	78-04-19	0	1	5.8	62	52	<2.0	<.4	1100000	.01
12/27E-19D02	78-04-19	10	3	7.3	12	9.8	<2.0	<.4	13000	.00
12/27E-31Q01	78-04-20	20	0	<1.4	4.4	3.8	<2.0	<.4	<480	.00
12/28E-19F01	78-04-17	0	2	<4.1	110	96	<2.0	<.4	1000000	.02
13/25E-16J01	78-04-18	10	1	<3.1	4.4	3.7	<2.0	<.4	<480	.00
13/25E-25R01	78-04-18	0	0	<2.1	5.6	5.0	<2.0	<.4	<480	.00
13/26E-14R01	78-04-18	10	0	<3.1	5.6	4.7	2.0	<.4	2500	.00
13/26E-26R03	78-04-17	10	0	<1.7	5.2	4.5	<2.0	<.4	<480	.00
13/26E-34C01	78-04-17	--	12	<4.2	13	4.5	<2.0	<.4	<480	.00
13/27E-28Q01	78-04-19	10	1	4.9	4.6	3.9	<2.0	<.4	<480	.00
13/27E-34R01	78-04-17	30	2	7.3	7.5	6.4	<2.0	<.4	23000	.00
14/26E-14M03	78-04-18	0	1	<3.1	270	13	<2.0	2.9	7200	.00

BENTON COUNTY--Continued

ANALYSES BY INDUCTIVELY COUPLED PLASMA SPECTROSCOPY

LOCAL IDENT-IFIER	DATE OF SAMPLE	COBALT 60 DISSOLVED (PCI/L)	SILVER DISSOLVED (MG/L AS AG)	ALUMINUM DISSOLVED (MG/L AS AL)	BORON DISSOLVED (MG/L AS B)	BARIUM DISSOLVED (MG/L AS BA)	BERYLLIUM DISSOLVED (MG/L AS BE)	BISMUTH DISSOLVED (MG/L AS BI)	CADMIUM DISSOLVED (MG/L AS CD)	COBALT DIS-SOLVED (MG/L AS CO)
11/28E-05C01	78-04-19	<1	<.010	.070	.030	.050	<.001	<1.0	.003	<.005
11/28E-18M01	78-04-19	6	<.010	.070	.030	.050	<.001	<1.0	.003	<.005
12/26E-08P01	78-04-18	<1	<.010	.070	.010	.030	<.001	<1.0	.001	<.005
12/26E-13H01	78-04-20	20	<.010	.070	.030	.030	<.001	<1.0	.003	<.005
12/26E-14D01	78-04-20	<1	<.010	.100	.030	.050	<.001	<1.0	.003	<.005
12/26E-15C01	78-04-20	<1	<.010	.070	.030	.070	<.001	<1.0	.003	<.005
12/26E-18G01	78-04-18	<1	<.010	.050	.010	.030	<.001	<1.0	.003	<.005
12/27E-15G01	78-04-19	70	<.010	.100	.030	.050	<.001	<1.0	.003	<.005
12/27E-16M02	78-04-19	30	<.010	.070	.030	.050	<.001	<1.0	.003	<.005
12/27E-19D02	78-04-19	1	<.010	.070	.030	.050	<.001	<1.0	.003	<.005
12/27E-31Q01	78-04-20	<1	<.010	.070	.030	.070	<.001	<1.0	.003	<.005
12/28E-19F01	78-04-17	60	<.010	.070	.030	.050	<.001	<1.0	.001	<.005
13/25E-16J01	78-04-18	<1	<.010	.070	.010	.010	<.001	<1.0	.003	<.005
13/25E-25B01	78-04-18	<1	<.010	.050	.010	.050	<.001	<1.0	.001	<.005
13/26E-14B01	78-04-18	<1	<.010	.070	.030	.010	<.001	<1.0	.003	<.005
13/26E-26B03	78-04-17	1	<.010	<.050	.010	.007	<.001	<1.0	.001	<.005
13/26E-34C01	78-04-17	<1	<.010	.100	.030	.030	<.001	<1.0	.001	<.005
13/27E-28Q01	78-04-19	<1	<.010	.070	.010	.050	<.001	<1.0	.003	<.005
13/27E-34R01	78-04-17	1	<.010	.070	.010	.050	<.001	<1.0	.003	<.005
14/26E-14M03	78-04-18	<1	<.010	.050	.007	.070	<.001	<1.0	.003	<.005

LOCAL IDENT-IFIER	DATE OF SAMPLE	CHROMIUM DISSOLVED (MG/L AS CR)	IRON, FERRIC DISSOLVED (MG/L AS FE3+)	GALLIUM DISSOLVED (MG/L AS GA)	GERMANIUM DISSOLVED (MG/L AS GE)	LITHIUM DISSOLVED (MG/L AS LI)	MANGANESE DISSOLVED (MG/L AS MN)	MOLYBDENUM DISSOLVED (MG/L AS MO)	NICKEL DISSOLVED (MG/L AS NI)
11/28E-05C01	78-04-19	<.050	<.005	<.030	.050	.010	.001	.010	<.050
11/28E-18M01	78-04-19	<.050	<.005	<.030	.070	.010	.001	.010	<.050
12/26E-08P01	78-04-18	<.050	<.005	<.030	.070	.007	.030	.010	<.050
12/26E-13H01	78-04-20	<.050	.030	<.030	.070	.010	.010	.010	<.050
12/26E-14D01	78-04-20	<.050	.010	<.030	.070	.010	.003	.010	<.050
12/26E-15C01	78-04-20	<.050	.007	<.030	.070	.010	.003	.030	<.050
12/26E-18G01	78-04-18	<.050	.007	<.030	.050	.005	.003	.030	<.050
12/27E-15G01	78-04-19	<.050	.010	<.030	.070	.007	.005	.010	<.050
12/27E-16M02	78-04-19	<.050	.010	<.030	.070	.007	.003	.030	<.050
12/27E-19D02	78-04-19	<.050	.010	<.030	.070	.007	.001	.030	<.050
12/27E-31Q01	78-04-20	<.050	.050	<.030	.070	.010	.070	.010	<.050
12/28E-19F01	78-04-17	<.050	.010	<.030	.050	.010	.001	.010	<.050
13/25E-16J01	78-04-18	<.050	.010	<.030	.070	.007	.001	.010	<.050
13/25E-25B01	78-04-18	<.050	.005	<.030	.030	<.005	.100	.010	<.050
13/26E-14B01	78-04-18	<.050	.030	<.030	.050	.007	.001	.010	<.050
13/26E-26B03	78-04-17	<.050	<.005	<.030	.050	<.005	.001	<.010	<.050
13/26E-34C01	78-04-17	<.050	.007	<.030	.050	.007	.005	.030	<.050
13/27E-28Q01	78-04-19	<.050	<.005	<.030	.070	.010	.010	.030	<.050
13/27E-34R01	78-04-17	<.050	.010	<.030	.070	.010	.003	.010	<.050
14/26E-14M03	78-04-18	.100	<.005	<.030	.030	<.005	.030	.010	<.050

LOCAL IDENT-IFIER	DATE OF SAMPLE	LEAD DISSOLVED (MG/L AS PB)	ANTIMONY DISSOLVED (MG/L AS SB)	TIN DISSOLVED (MG/L AS SN)	STRONTIUM DISSOLVED (MG/L AS SR)	TITANIUM DISSOLVED (MG/L AS TI)	VANADIUM DISSOLVED (MG/L AS V)	ZINC DISSOLVED (MG/L AS ZN)	ZIRCONIUM DISSOLVED (MG/L AS ZR)
11/28E-05C01	78-04-19	<.030	<.030	.050	.300	<.005	.010	<.005	<.005
11/28E-18M01	78-04-19	<.030	<.030	.070	.300	<.005	.010	<.005	<.005
12/26E-18P01	78-04-18	<.030	<.030	.050	.100	<.005	.030	<.005	<.005
12/26E-13H01	78-04-20	<.030	<.030	.070	.100	<.005	.030	<.005	<.005
12/26E-14D01	78-04-20	<.030	<.030	.100	.300	<.005	.030	<.005	<.005
12/26E-15C01	78-04-20	<.030	<.030	.100	.300	<.005	.030	.100	<.005
12/26E-18G01	78-04-18	<.030	<.030	.070	.100	<.005	.030	<.005	<.005
12/27E-15G01	78-04-19	<.030	<.030	.070	.300	<.005	.010	<.005	<.005
12/27E-16M02	78-04-19	<.030	<.030	.070	.300	<.005	.030	<.005	<.005
12/27E-19D02	78-04-19	<.030	<.030	.050	.300	<.005	.010	<.005	<.005
12/27E-31Q01	78-04-20	<.030	<.030	.070	.100	<.005	<.010	<.005	<.005
12/28E-19F01	78-04-17	<.030	<.030	.070	.300	<.005	.010	.030	<.005
13/25E-16J01	78-04-18	<.030	<.030	.070	.100	<.005	.030	<.005	<.005
13/25E-25B01	78-04-18	<.030	<.030	<.050	.100	<.005	<.010	<.005	<.005
13/26E-14B01	78-04-18	<.030	<.030	<.050	.100	<.005	.030	<.005	<.005
13/26E-26B03	78-04-17	<.030	<.030	<.050	.100	<.005	.010	<.005	<.005
13/26E-34C01	78-04-17	<.030	<.030	<.050	.300	<.005	.010	<.005	<.005
13/27E-28Q01	78-04-19	<.030	<.030	.070	.300	<.005	.030	.300	<.005
13/27E-34R01	78-04-17	<.030	<.030	.070	.300	<.005	.010	<.005	<.005
14/26E-14M03	78-04-18	<.030	<.030	.100	.300	<.005	<.010	<.005	<.005

All results are reported in MG/L. Results are rounded to the nearest reporting level. Reporting levels range from the detection limit in in steps of 1, 3, 5, 7, and 10. Levels which are less than the detection limit are reported as < that value. Levels which are greater than the upper concentration limit are reported as > that value. For example, for an analysis of lead the result would be reported as one of the following concentrations in MG/L: <0.03, 0.05, 0.07, 0.1, 0.3, 0.5, 0.7, 1, 3, 5, 7, >10. Results are reported one significant figure only. Due to the rounding technique even one significant figure is an estimate. The precision is approximately plus or minus one step at the 68 percent confidence level (1 std.dev.) and two steps at 95 percent confidence level (2 std.dev.).

KITTITAS COUNTY

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	DEPTH TO TOP OF SAMPLE INTERVAL (FT)
16/19E-28C01	465111120272701	46 51 11	120 27 27	01	78-03-02	0815	1019	1019	474

LOCAL IDENT-I-FIER	DATE OF SAMPLE	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	PUMP OR FLOW PERIOD PRIOR TO SAMPLING (MIN)	FLOW RATE, INSTANTANEOUS (GPM)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)
16/19E-28C01	78-03-02	1425.00	381	960	195	8.5	26.0	1	56	0

LOCAL IDENT-I-FIER	DATE OF SAMPLE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)
16/19E-28C01	78-03-02	14	5.2	22	45	1.3	2.6	120	0	98

LOCAL IDENT-I-FIER	DATE OF SAMPLE	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
16/19E-28C01	78-03-02	.6	1.9	3.3	.6	48	150	157

LOCAL IDENT-I-FIER	DATE OF SAMPLE	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
16/19E-28C01	78-03-02	.20	.00	30	0

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH OF WELL, TOTAL (FEET)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
15/19E-22L01	464614120261001	46 46 14	120 26 10	01	78-08-16	1145	402	260	8.0

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM ADSORPTION RATIO
15/19E-22L01	78-08-16	22.0	0	80	0	17	9.2	22	36	1.1

LOCAL IDENT-I-FIER	DATE OF SAMPLE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
15/19E-22L01	78-08-16	4.5	120	1.5	4.3	.5	51	175	182

LOCAL IDENT-I-FIER	DATE OF SAMPLE	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
15/19E-22L01	78-08-16	.24	.00	120	20

SPOKANE COUNTY

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
25/42E-03H01	474146117282801	47 41 46	117 28 28	01	77-05-17	1322	--	124	251
					77-10-12	1035	--	124	300
					78-05-09	1015	--	124	268
25/42E-11E01	474048117282201	47 40 48	117 28 22	01	77-05-19	0855	--	201	277
					77-10-12	0825	--	201	325
*					78-05-09	0825	--	201	276
25/42E-14J01	473952117272501	47 37 52	117 27 25	01	77-05-16	1220	--	160	189
25/42E-23H01	473924117273701	47 39 24	117 27 37	01	77-05-17	1200	--	59	258
					77-10-12	1005	--	59	275
					78-05-09	0950	--	59	300
25/43E-04R02	474200117223901	47 42 00	117 22 39	01	77-05-17	0945	--	227	372
25/43E-08A01	474100117233601	47 41 00	117 23 36	01	77-10-12	0820	--	124	233
					78-05-09	0820	--	124	252
25/43E-09G03	474046.17222201	47 40 46	117 22 22	01	77-05-16	1520	--	73	160
					77-10-11	1310	--	73	190
					78-05-10	0835	--	73	97
25/43E-10P02	474025117212201	47 40 25	117 21 22	01	77-05-24	1100	39	96	275
					77-05-24	1105	42	96	300
					77-05-24	1110	45	96	280
					77-05-24	1115	49	96	300
					77-05-24	1120	64	96	285
					77-05-24	1125	92	96	270
					77-10-12	1200	40	96	260
					77-10-12	1215	45	96	260
					77-10-12	1230	50	96	260
					77-10-12	1245	65	96	265
					77-10-12	1300	95	96	265
					78-05-10	1300	38	96	350
					78-05-10	1330	43	96	315
					78-05-10	1350	58	96	315
					78-05-10	1415	88	96	275
25/43E-11R03	474103117195801	47 41 03	117 19 58	01	77-05-16	1710	--	128	145
					77-10-11	1350	--	128	140
					78-05-08	1720	--	128	111
25/43E-11N02	474103117203201	47 41 03	117 20 32	01	77-05-16	1630	--	80	165
					77-10-11	1330	--	80	145
					78-05-08	1700	--	80	151
25/43E-11E02	474056117203101	47 40 56	117 20 31	01	77-05-16	1550	--	--	160
25/43E-11M03	474042117204101	47 40 42	117 20 41	01	77-05-19	1000	53	98	260
					77-05-19	1005	56	98	260

* 25/42E/13B01 -- Listed at end of Spokane County page 348.

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
25/42E-03H01	77-05-17	10.7	3.3	1.4	.00	1.4	.02
	77-10-12	11.4	2.6	1.7	.00	--	.04
	78-05-09	11.1	4.6	1.7	.00	--	.02
25/42E-11E01	77-05-19	11.0	4.0	1.4	.00	1.4	.03
	77-10-12	10.2	2.0	1.7	.00	--	.02
	78-05-09	10.0	3.0	1.3	.00	--	.02
25/42E-14J01	77-05-16	10.4	2.0	.76	.00	.76	.05
25/42E-23H01	77-05-17	9.0	7.2	1.5	.00	1.5	.04
	77-10-12	11.1	10	1.7	.00	--	.04
	78-05-09	9.0	10	1.6	.00	--	.02
25/43E-04H02	77-05-17	11.0	4.0	2.1	.00	2.1	.05
25/43E-08A01	77-10-12	10.0	1.6	1.6	.00	--	.04
	78-05-09	11.4	2.4	1.4	.00	--	.01
25/43E-09G03	77-05-16	9.6	1.3	.71	.01	.72	.03
	77-10-11	14.0	1.0	.40	.00	--	.02
	78-05-10	6.4	.9	.24	.00	--	.02
25/43E-10P02	77-05-24	16.0	1.9	1.5	.01	1.5	.07
	77-05-24	16.0	1.9	1.4	.00	1.4	.04
	77-05-24	15.0	1.8	1.5	.01	1.5	.03
	77-05-24	14.0	1.8	1.5	.01	1.5	.06
	77-05-24	14.0	1.9	1.6	.01	1.6	.04
	77-05-24	15.0	2.2	1.5	.00	1.5	.04
	77-10-12	12.0	1.9	1.3	.01	--	.01
	77-10-12	12.0	1.8	1.2	.00	--	.03
	77-10-12	12.0	2.1	1.2	.00	--	.03
	77-10-12	12.0	--	1.3	.00	--	.01
	77-10-12	12.0	1.7	1.2	.00	--	.02
	78-05-10	11.0	4.4	2.1	.00	--	.02
	78-05-10	11.0	4.0	2.0	.00	--	.03
	78-05-10	11.0	3.6	1.8	.00	--	.02
	78-05-10	11.0	3.2	1.8	.00	--	.02
25/43E-11H03	77-05-16	9.0	.7	.19	.00	.19	.02
	77-10-11	14.0	.9	.17	.00	--	.02
	78-05-08	7.9	1.0	.61	.00	--	.01
25/43E-11D02	77-05-16	10.0	.8	.00	.00	.00	.02
	77-10-11	12.0	.8	.11	.00	--	.02
	78-05-08	15.0	1.4	.46	.01	--	.04
25/43E-11E02	77-05-16	10.5	1.4	.67	.00	.67	.02
25/43E-11M03	77-05-19	14.2	1.2	.80	.01	.90	.07
	77-05-19	12.0	1.2	.93	.00	.93	.03

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
25/42E-03H01	77-05-17	--	--	.01	.03
	77-10-12	--	--	.00	.00
	78-05-04	--	--	.01	.03
25/42E-11E01	77-05-19	--	--	.02	.06
	77-10-12	--	--	.01	.03
	78-05-09	--	--	.02	.06
25/42E-14J01	77-05-16	--	--	.02	.06
25/42E-23A01	77-05-17	--	--	.04	.12
	77-10-12	--	--	.03	.09
	78-05-09	--	--	.04	.12
25/43E-04A02	77-05-17	--	--	.00	.00
25/43E-08A01	77-10-12	--	--	.00	.00
	78-05-09	--	--	.00	.00
25/43E-09G03	77-05-16	--	--	.10	.31
	77-10-11	--	--	.00	.00
	78-05-10	--	--	.00	.00
25/43E-10P02	77-05-24	--	--	.00	.00
	77-05-24	--	--	.00	.00
	77-05-24	--	--	.00	.00
	77-05-24	--	--	.00	.00
	77-05-24	--	--	.00	.00
	77-10-12	--	--	.00	.00
	77-10-12	--	--	.00	.00
	77-10-12	--	--	.00	.00
	77-10-12	--	--	.00	.00
	77-10-12	--	--	.00	.00
	78-05-10	--	--	.00	.00
	78-05-10	--	--	.00	.00
	78-05-10	--	--	.00	.00
25/43E-11A03	77-05-16	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-08	--	--	.00	.00
25/43E-11D02	77-05-16	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-08	--	--	.00	.00
25/43E-11E02	77-05-16	--	--	.00	.00
25/43E-11M03	77-05-19	--	--	.00	.00
	77-05-19	--	--	.00	.00

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
25/43E-11H03	474042117204101	47 40 42	117 20 41	01	77-05-19	1010	59	98	260
					77-05-19	1015	63	98	270
					77-05-19	1020	78	98	250
					77-05-19	1025	97	98	260
					77-10-12	0830	57	98	245
					77-10-12	0845	62	98	265
					77-10-12	0900	67	98	275
					77-10-12	0915	82	98	280
					77-10-12	0920	95	98	280
					78-05-10	1020	49	98	275
					78-05-10	1045	54	98	275
					78-05-10	1105	59	98	275
					78-05-10	1125	74	98	275
					78-05-10	1145	94	98	275
25/43E-11N01	474027117203701	47 40 27	117 20 37	01	77-05-17	1000	--	70	300
					77-10-11	1630	--	70	320
					78-05-10	0840	--	70	306
25/43E-11P01	474021117192901	47 40 21	117 19 29	01	77-05-17	1120	--	104	440
					77-10-11	1530	--	104	330
					78-05-10	0900	--	104	281
25/43E-12H01	474053117181101	47 40 53	117 18 11	01	77-05-17	1545	--	94	350
					77-10-12	1015	--	94	340
					78-05-11	1630	--	94	310
25/43E-12L02	474034117185901	47 40 31	117 19 06	01	77-05-17	1035	--	100	490
					77-10-11	1500	--	100	340
*									
25/43E-13R01	473929117182701	47 39 29	117 18 27	01	77-05-17	1305	--	140	275
25/43E-14E01	473955117204201	47 39 55	117 20 42	01	77-05-26	0800	66	211	225
					77-05-26	0805	69	211	240
					77-05-26	0810	72	211	230
					77-05-26	0815	76	211	230
					77-05-26	0820	91	211	240
					77-05-26	0825	116	211	225
					77-10-11	1315	71	211	250
					77-10-11	1330	76	211	250
					77-10-11	1345	81	211	250
					77-10-11	1400	96	211	250
					77-10-11	1415	121	211	255
					78-05-11	0825	63	211	240
					78-05-11	0840	68	211	240
					78-05-11	0850	73	211	225

* 25/43E-13A01 - Listed at end of Spokane County page 349.

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
25/43E-11M03	77-05-19	13.0	1.1	.02	.00	.02	.03
	77-05-19	12.0	1.1	.09	.01	.10	.07
	77-05-19	14.0	1.4	.09	.01	.10	.14
	77-05-19	16.0	1.2	.08	.01	.09	.04
	77-10-12	10.0	1.1	.04	.00	--	.03
	77-10-12	10.0	1.1	.03	.00	--	.04
	77-10-12	10.0	1.1	.03	.00	--	.04
	77-10-12	10.0	1.1	.04	.00	--	.02
	77-10-12	10.0	1.1	.04	.00	--	.03
	78-05-10	10.0	1.1	.02	.00	--	.03
	78-05-10	9.5	1.1	.01	.00	--	.03
	78-05-10	9.5	1.1	.02	.00	--	.02
	78-05-10	9.5	1.1	.00	.00	--	.02
	78-05-10	9.5	1.0	.05	.00	--	.02
25/43E-11N01	77-05-17	12.2	1.5	1.0	.00	1.0	.01
	77-10-11	10.0	1.5	.05	.00	--	.02
	78-05-10	9.4	2.2	.00	.00	--	.01
25/43E-11P01	77-05-17	9.5	1.7	1.4	.00	1.4	.01
	77-10-11	11.0	2.4	1.3	.00	--	.01
	78-05-10	10.3	2.1	1.5	.00	--	.02
25/43E-12M01	77-05-17	10.0	1.0	1.1	.00	1.1	.02
	77-10-12	10.0	2.1	1.3	.00	--	.03
	78-05-11	9.2	3.1	1.6	.00	--	.01
25/43E-12L02	77-05-17	10.3	2.4	1.4	.00	1.4	.03
	77-10-11	10.6	2.2	1.3	.00	--	.02
25/43E-13R01	77-05-17	11.2	2.0	1.4	.01	1.4	.04
25/43E-14E01	77-05-26	13.0	1.6	1.2	.00	1.2	.01
	77-05-26	12.0	1.7	1.2	.00	1.2	.01
	77-05-26	12.0	1.6	1.2	.01	1.2	.02
	77-05-26	12.0	1.6	1.2	.02	1.2	.02
	77-05-26	12.0	1.7	1.2	.01	1.2	.01
	77-05-26	12.0	1.8	1.3	.00	1.3	.01
	77-10-11	11.0	1.4	1.2	.00	--	.01
	77-10-11	11.0	1.4	1.1	.01	--	.04
	77-10-11	11.0	1.5	1.1	.01	--	.05
	77-10-11	11.0	1.4	1.2	.01	--	.02
	77-10-11	11.0	1.4	1.1	.01	--	.02
	78-05-11	11.0	2.0	1.3	.00	--	.03
	78-05-11	11.0	2.4	1.3	.00	--	.02
	78-05-11	11.0	2.0	1.2	.00	--	.03

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
25/43E-11M03	77-05-19	--	--	.00	.00
	77-05-19	--	--	.00	.00
	77-05-19	--	--	.00	.00
	77-05-19	--	--	.00	.00
	77-10-12	--	--	.00	.00
	77-10-12	--	--	.00	.00
	77-10-12	--	--	.00	.00
	77-10-12	--	--	.00	.00
	77-10-12	--	--	.00	.00
	78-05-10	--	--	.00	.00
	78-05-10	--	--	.00	.00
	78-05-10	--	--	.00	.00
	78-05-10	--	--	.00	.00
	78-05-10	--	--	.00	.00
25/43E-11N01	77-05-17	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-10	--	--	.00	.00
25/43E-11P01	77-05-17	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-10	--	--	.00	.00
25/43E-12H01	77-05-17	--	--	.01	.03
	77-10-12	--	--	.01	.03
	78-05-11	--	--	.02	.06
25/43E-12L02	77-05-17	--	--	.02	.06
	77-10-11	--	--	.01	.03
25/43E-13P01	77-05-17	--	--	.00	.00
25/43E-14E01	77-05-26	--	--	.00	.00
	77-05-26	--	--	.00	.00
	77-05-26	--	--	.00	.00
	77-05-26	--	--	.00	.00
	77-05-26	--	--	.00	.00
	77-05-26	--	--	.00	.00
	77-10-11	--	--	.00	.00
	77-10-11	--	--	.00	.00
	77-10-11	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-11	--	--	.00	.00
	78-05-11	--	--	.00	.00
	78-05-11	--	--	.00	.00

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
25/43E-14E01	473955117204201	47 39 55	117 20 42	01	78-05-11	0905	88	211	230
*					78-05-11	0920	113	211	235
25/43E-14L01	473938117201401	47 39 38	117 20 14	01	77-05-31	0800	54	120	225
					77-05-31	0805	64	120	240
					77-05-31	0810	79	120	225
					77-05-31	0815	104	120	245
					77-10-12	1315	56	120	260
					77-10-12	1330	61	120	260
					77-10-12	1345	66	120	260
					77-10-12	1400	81	120	265
					77-10-12	1415	101	120	265
					78-05-11	1015	49	120	245
					78-05-11	1025	54	120	225
					78-05-11	1035	59	120	225
					78-05-11	1045	74	120	235
					78-05-11	1055	89	120	235
25/43E-15G02	474002117211801	47 40 02	117 21 18	01	77-05-17	0900	--	129	235
					77-10-11	1600	--	129	270
					78-05-09	1455	--	129	264
25/43E-16K01	473945117223701	47 39 45	117 22 37	01	77-05-18	1010	--	65	290
					77-10-12	1500	--	65	290
					78-05-09	1400	--	65	232
25/43E-17R01	473917117234901	47 39 27	117 23 26	01	77-05-18	0930	--	100	450
					77-10-12	1520	--	100	380
					78-05-11	1200	--	100	440
25/43E-21B01	473923117222801	47 39 23	117 22 28	01	77-05-17	0835	--	87	305
25/43E-22F01	473901117214201	47 39 01	117 21 42	01	77-05-17	1053	--	77	363
					77-10-12	0940	--	77	350
					78-05-09	0900	--	77	397
25/43E-23A01	473920117194501	47 39 17	117 19 41	01	77-05-17	1647	--	142	332
*					77-10-12	1530	--	142	352
					78-05-09	1510	--	142	324
25/44E-02R01	474152117120801	47 41 52	117 12 08	01	77-05-18	1330	--	127	335
					77-10-13	0815	--	127	430
					78-05-10	0830	--	127	319
25/44E-03R01	474152117133801	47 41 54	117 13 40	01	77-05-18	1340	--	122	465
					77-10-13	0840	--	122	470
25/44E-04H03	474117117142401	47 41 17	117 14 24	01	77-05-18	1405	--	118	270
					77-10-13	0900	--	118	290
					78-05-10	0901	--	118	275

* 25/43E-14K01 - Listed at end of Spokane County page 350.
* 25/44E-01R01 - Listed at end of Spokane County page 351.

SPOKANE RIVER--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
25/43E-14E01	78-05-11	11.0	2.0	1.2	.00	--	.02
	78-05-11	11.0	2.2	1.3	.00	--	.02
25/43E-14L01	77-05-31	14.0	2.1	1.4	.01	1.4	.08
	77-05-31	14.5	2.0	1.4	.00	1.4	.02
	77-05-31	14.0	1.9	1.4	.01	1.4	.04
	77-05-31	13.9	2.0	1.4	.01	1.4	.06
	77-10-12	13.0	1.8	1.3	.01	--	.13
	77-10-12	12.0	1.8	1.4	.01	--	.05
	77-10-12	12.0	1.9	1.5	.01	--	.06
	77-10-12	12.0	1.8	1.5	.00	--	.04
	77-10-12	12.0	1.7	1.3	.00	--	.05
	78-05-11	11.0	2.2	1.3	.00	--	.02
	78-05-11	11.0	2.1	1.4	.00	--	.02
	78-05-11	11.0	2.2	1.4	.00	--	.03
	78-05-11	11.0	3.6	1.5	.00	--	.07
	78-05-11	11.0	2.2	1.4	.00	--	.03
25/43E-15G02	77-05-17	10.4	2.3	1.4	.00	1.4	.02
	77-10-11	11.0	1.7	1.3	.00	--	.02
	78-05-09	11.0	2.7	1.5	.00	--	.03
25/43E-16K01	77-05-18	12.4	3.0	1.7	.00	1.7	.05
	77-10-12	11.4	2.7	1.4	.00	--	.04
	78-05-09	12.4	2.6	1.5	.00	--	.01
25/43E-17H01	77-05-18	11.5	8.1	3.9	.00	3.9	.02
	77-10-12	11.6	7.0	3.5	.00	--	.04
	78-05-11	11.0	8.3	3.0	.00	--	.02
25/43E-21H01	77-05-17	12.2	4.5	2.8	.00	2.8	.02
25/43E-22F01	77-05-17	11.5	8.7	4.2	.00	4.2	.02
	77-10-12	11.3	7.6	3.7	.00	--	.02
	78-05-09	11.0	8.7	4.2	.01	--	.02
25/43E-23A01	77-05-17	11.6	4.0	2.8	.00	2.8	.02
	77-10-12	11.9	4.9	2.8	.00	--	.02
	78-05-09	11.6	5.0	2.8	.00	--	.02
25/44E-02B01	77-05-18	15.2	3.3	2.4	.00	2.4	.02
	77-10-13	14.4	4.2	3.4	.00	--	.01
	78-05-10	12.6	2.5	2.2	.00	--	.03
* 25/44E-03B01	77-05-18	11.2	6.4	6.5	.01	6.5	.02
	77-10-13	11.1	4.9	4.3	.00	--	.02
25/44E-04N03	77-05-18	9.5	1.3	1.4	.00	1.4	.02
	77-10-13	10.0	1.4	1.4	.00	--	.02
	78-05-10	8.8	2.9	1.5	.00	--	.02

* 25/44E-02Q01 - Listed at end of Spokane County page 352.

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
25/43E-14E01	78-05-11	--	--	.00	.00
	78-05-11	--	--	.00	.00
25/43E-14L01	77-05-31	--	--	.01	.03
	77-05-31	--	--	.00	.00
	77-05-31	--	--	.01	.03
	77-05-31	--	--	.01	.03
	77-10-12	--	--	.00	.00
	77-10-12	--	--	.00	.00
	77-10-12	--	--	.00	.00
	77-10-12	--	--	.00	.00
	77-10-12	--	--	.00	.00
	78-05-11	--	--	.00	.00
	78-05-11	--	--	.00	.00
	78-05-11	--	--	.00	.00
	78-05-11	--	--	.01	.03
	78-05-11	--	--	.00	.00
25/43E-15G02	77-05-17	--	--	.01	.03
	77-10-11	--	--	.00	.00
	78-05-09	--	--	.00	.00
25/43E-16K01	77-05-18	--	--	.01	.03
	77-10-12	--	--	.00	.00
	78-05-09	--	--	.00	.00
25/43E-17R01	77-05-18	--	--	.01	.03
	77-10-12	--	--	.01	.03
	78-05-11	--	--	.01	.03
25/43E-21B01	77-05-17	--	--	.01	.03
25/43E-22F01	77-05-17	--	--	.02	.06
	77-10-12	.03	.05	.02	.06
	78-05-09	--	--	.03	.09
25/43E-23A01	77-05-17	--	--	.01	.03
	77-10-12	.04	.06	.01	.03
	78-05-09	--	--	.01	.03
25/44E-02R01	77-05-18	--	--	.01	.03
	77-10-13	.09	.10	.01	.03
	78-05-10	--	--	.01	.03
25/44E-03B01	77-05-18	--	--	.02	.06
	77-10-13	--	--	.02	.06
25/44E-04R03	77-05-18	--	--	.01	.03
	77-10-13	--	--	.00	.00
	78-05-10	--	--	.00	.00

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
25/44E-05D01	474155117164801	47 41 50	117 16 41	01	77-05-18	1200	--	202	290
					77-10-12	1315	--	202	280
					78-05-10	1040	--	202	240
25/44E-05K01	474135117161401	47 41 32	117 16 05	01	77-05-18	1215	--	234	270
					77-10-12	1345	--	234	270
25/44E-05P01	474110117154001	47 41 10	117 15 40	01	77-05-17	1500	--	130	320
					77-10-12	1115	--	130	315
					78-05-11	1550	--	130	261
25/44E-06A01	474149117170301	47 41 49	117 17 03	01	78-05-10	1025	--	104	228
25/44E-07R01	474058117172401	47 40 57	117 17 21	01	77-05-17	1435	--	120	350
*									
					77-10-12	1130	--	120	350
					78-05-11	1610	--	120	260
25/44E-07J02	474037117171301	47 40 32	117 17 11	01	77-05-18	0752	--	110	306
					77-10-12	1635	--	110	332
					78-05-09	1555	--	110	300
25/44E-08D01	474106117165101	47 41 09	117 16 35	01	77-05-17	1420	--	112	340
					77-10-12	1050	--	112	320
					78-05-11	1540	--	112	271
25/44E-08N01	474027117163701	47 40 27	117 16 37	01	77-10-13	0940	--	135	290
					78-05-09	0850	--	135	301
25/44E-09C01	474107117150001	47 41 07	117 15 00	01	77-05-18	1435	--	125	285
					77-10-13	0930	--	125	250
					78-05-10	0914	--	125	265
25/44E-09C02	474117117142301	47 41 09	117 15 00	01	77-05-19	0900	93	150	250
					77-05-19	0905	98	150	275
					77-05-19	0910	99	150	280
					77-05-19	0915	104	150	290
					77-05-19	0920	119	150	265
					77-05-19	0925	144	150	260
					77-10-13	0845	97	150	310
					77-10-13	0900	102	150	300
					77-10-13	0915	107	150	298
					77-10-13	0930	122	150	300
					77-10-13	0945	147	150	298
					78-05-15	0835	89	150	250
					78-05-15	0855	94	150	250
					78-05-15	0905	99	150	260
					78-05-15	0915	114	150	260
					78-05-15	0925	139	150	260
25/44E-09E01	474039117153201	47 40 39	117 15 32	01	77-05-18	1500	--	--	300

* 25/44E-07C01 - Listed at end of Spokane County page 353.

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
25/44E-05D01	77-05-18	11.6	2.2	2.6	.00	2.6	.01
	77-10-12	11.6	2.3	2.5	.00	--	.01
	78-05-10	13.0	2.6	2.2	.00	--	.01
25/44E-05K01	77-05-18	10.2	2.4	1.8	.00	1.8	.02
	77-10-12	10.0	2.5	1.7	.00	--	.02
25/44E-05R01	77-05-17	10.0	1.6	1.2	.00	1.2	.02
	77-10-12	10.0	1.6	1.2	.00	--	.02
	78-05-11	10.7	2.9	1.5	.00	--	.05
25/44E-06A01	78-05-1[illegible]	10.5	3.2	1.8	.00	--	.02
25/44E-07B01	77-05-1[illegible]	9.8	1.8	1.2	.00	1.2	.02
	77-10-12	9.6	2.1	1.3	.00	--	.02
	78-05-11	9.6	2.3	1.3	.00	--	.04
25/44E-07J02	77-05-18	9.2	1.9	1.2	.00	1.2	.01
	77-10-12	10.6	1.6	1.1	.00	--	.02
	78-05-09	9.4	2.4	1.2	.00	--	.02
25/44E-08D01	77-05-17	9.8	2.1	1.4	.00	1.4	.03
	77-10-12	9.8	1.6	1.3	.00	--	.02
	78-05-11	9.4	2.9	1.6	.00	--	.01
25/44E-08N01	77-10-13	11.2	.9	1.0	.00	--	.03
	78-05-09	8.8	2.1	1.6	.00	--	.02
25/44E-09C01	77-05-18	10.0	1.5	1.1	.00	1.1	.01
	77-10-13	10.0	1.2	1.1	.00	--	.03
	78-05-10	9.6	2.4	1.2	.00	--	.02
25/44E-09C02	77-05-19	14.0	1.7	1.1	.01	1.1	.06
	77-05-19	13.0	2.1	1.2	.01	1.2	.12
	77-05-19	15.0	1.8	1.1	.01	1.1	.06
	77-05-19	13.9	1.8	1.1	.00	1.1	.12
	77-05-19	16.0	1.6	1.1	.00	1.1	.06
	77-05-19	12.0	1.6	1.1	.00	1.1	.08
	77-10-13	11.0	2.2	1.1	.00	--	.04
	77-10-13	11.0	1.8	1.1	.01	--	.07
	77-10-13	11.0	1.3	1.0	.00	--	.05
	77-10-13	10.8	1.2	1.0	.00	--	.05
	77-10-13	10.8	1.3	1.1	.01	--	.05
	78-05-15	10.0	2.3	1.2	.00	--	.02
	78-05-15	10.0	2.3	1.2	.00	--	.02
	78-05-15	10.0	2.9	1.1	.00	--	.01
	78-05-15	10.0	2.1	1.1	.00	--	.01
	78-05-15	10.0	2.5	1.2	.00	--	.01
25/44E-09E01	77-05-18	9.0	1.0	.82	.00	.82	.02

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
25/44E-05D01	77-05-18	--	--	.00	.00
	77-10-12	--	--	.00	.00
	78-05-10	--	--	.01	.03
25/44E-05K01	77-05-18	--	--	.01	.03
	77-10-12	--	--	.00	.00
25/44E-05R01	77-05-17	--	--	.00	.00
	77-10-12	--	--	.00	.00
	78-05-11	--	--	.01	.03
25/44E-06A01	78-05-10	--	--	.01	.03
25/44E-07A01	77-05-17	--	--	.01	.03
	77-10-12	--	--	.01	.03
	78-05-11	--	--	.00	.00
25/44E-07J02	77-05-18	--	--	.01	.03
	77-10-12	--	--	.01	.03
	78-05-09	--	--	.01	.03
25/44E-08D01	77-05-17	--	--	.01	.03
	77-10-12	--	--	.01	.03
	78-05-11	--	--	.01	.03
25/44E-08N01	77-10-13	--	--	.00	.00
	78-05-09	--	--	.00	.00
25/44E-09C01	77-05-18	--	--	.01	.03
	77-10-13	--	--	.01	.03
	78-05-10	--	--	.01	.03
25/44E-09C02	77-05-19	--	--	.00	.00
	77-05-19	--	--	.00	.00
	77-05-19	--	--	.00	.00
	77-05-19	--	--	.00	.00
	77-05-19	--	--	.00	.00
	77-10-13	.15	.19	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	.02	.07	.00	.00
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.01	.03
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.01	.03
	78-05-15	--	--	.01	.03
25/44E-09E01	77-05-18	--	--	.00	.00

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
25/44E-09E01	474039117153201	47 40 39	117 15 32	01	77-10-13	0955	--	--	295
					78-05-10	0925	--	--	270
25/44E-09P01	474023117145001	47 40 23	117 14 50	01	77-05-18	1100	65	121	290
					77-05-18	1105	68	121	300
					77-05-18	1110	71	121	295
					77-05-18	1115	75	121	300
					77-05-18	1120	90	121	290
					77-05-18	1125	115	121	290
					77-10-13	1000	65	121	310
					77-10-13	1015	70	121	320
					77-10-13	1030	75	121	325
					77-10-13	1045	90	121	300
					77-10-13	1100	114	121	310
					78-05-15	1025	57	121	305
					78-05-15	1035	62	121	305
					78-05-15	1045	67	121	305
					78-05-15	1055	82	121	305
					78-05-15	1105	117	121	300
25/44E-12D01	474104117113501	47 41 04	117 11 35	01	77-05-19	0930	--	--	295
					77-10-12	1655	--	--	320
					78-05-09	1610	--	--	280
25/44E-12M01	474040117114001	47 40 40	117 11 40	01	78-05-15	1220	52	100	280
					78-05-15	1230	57	100	300
					78-05-15	1240	62	100	300
					78-05-15	1250	77	100	300
					78-05-15	1300	90	100	--
					78-05-16	1050	--	100	--
25/44E-13M01	473939117114201	47 39 39	117 11 42	01	77-05-17	1515	--	125	210
					77-10-12	1335	--	125	370
25/44E-15E01	473957117141901	47 39 57	117 14 19	01	77-05-18	1000	--	156	288
					77-10-13	0900	--	156	300
					78-05-09	0835	--	156	282
25/44E-15J01	473945117130401	47 39 45	117 13 04	01	77-05-17	1700	--	156	235
					77-10-12	1410	--	156	410
					78-05-10	1041	--	156	190
25/44E-16E01	473954117152101	47 39 54	117 15 21	01	77-10-13	0915	--	128	285
					78-05-09	1005	--	128	280
25/44E-17A01	474012117153801	47 40 12	117 15 38	01	77-05-18	1015	--	125	285
					77-10-13	0930	--	125	300
					78-05-09	0940	--	125	292

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
25/44E-09E01	77-10-13	9.4	1.8	.82	.00	--	.02
	78-05-10	8.8	1.3	.84	.00	--	.04
25/44E-09P01	77-05-18	13.0	1.3	.88	.00	.88	.02
	77-05-18	13.0	1.7	1.0	.00	1.0	.05
	77-05-18	12.0	1.6	.99	.01	1.0	.07
	77-05-18	12.0	1.5	.99	.01	1.0	.07
	77-05-18	14.0	1.4	.88	.00	.88	.07
	77-05-18	14.0	1.7	.99	.01	1.0	.12
	77-10-13	10.0	1.0	.89	.01	--	.07
	77-10-13	10.0	5.1	.89	.01	--	.08
	77-10-13	10.0	1.1	.89	.00	--	.07
	77-10-13	10.0	1.1	.88	.01	--	.07
	77-10-13	10.0	1.2	.84	.00	--	.01
	78-05-15	9.0	1.7	.88	.00	--	.01
	78-05-15	9.0	1.8	1.0	.00	--	.02
	78-05-15	9.0	1.7	1.0	.00	--	.02
	78-05-15	9.0	1.8	1.0	.00	--	.02
	78-05-15	9.0	1.6	.92	.00	--	.02
25/44E-12D01	77-05-19	9.6	1.2	1.2	.00	1.2	.03
	77-10-12	9.0	1.2	1.0	.00	--	.02
	78-05-09	8.8	1.3	1.1	.00	--	.02
25/44E-12M01	78-05-15	9.0	7.6	.83	.00	--	.02
	78-05-15	9.0	6.0	.81	.00	--	.02
	78-05-15	9.0	4.8	.75	.00	--	.02
	78-05-15	9.0	6.4	.73	.00	--	.03
	78-05-15	9.0	--	.81	.00	--	.02
	78-05-16	--	--	--	--	--	--
25/44E-13M01	77-05-17	11.5	1.0	1.0	.00	1.0	.02
	77-10-12	11.2	3.7	2.6	.00	--	.02
25/44E-15E01	77-05-18	9.0	1.2	1.1	.00	1.1	.02
	77-10-13	11.0	1.2	1.2	.00	--	.01
	78-05-09	8.4	1.6	1.2	.00	--	.03
25/44E-15J01	77-05-17	12.4	1.6	1.6	.00	1.6	.04
	77-10-12	15.6	3.7	2.6	.00	--	.02
	78-05-10	9.8	1.2	.76	.00	--	.03
25/44E-16E01	77-10-13	10.0	1.4	1.1	.00	--	.02
	78-05-09	9.4	2.2	1.4	.00	--	.03
25/44E-17A01	77-05-18	9.2	1.2	1.0	.00	1.0	.02
	77-10-13	9.4	1.6	1.1	.00	--	.01
	78-05-09	8.6	1.9	1.2	.00	--	.03

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
25/44E-09E01	77-10-13	--	--	.00	.00
	78-05-10	--	--	.00	.00
25/44E-09P01	77-05-18	--	--	.00	.00
	77-05-18	--	--	.00	.00
	77-05-18	--	--	.00	.00
	77-05-18	--	--	.00	.00
	77-05-18	--	--	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.00	.00
25/44E-12D01	77-05-19	--	--	.00	.00
	77-10-12	--	--	.00	.00
25/44E-12H01	78-05-09	--	--	.00	.00
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.00	.00
	78-05-15	--	--	.00	.00
	78-05-16	--	--	--	--
25/44E-13H01	77-05-17	--	--	.00	.00
	77-10-12	--	--	.01	.03
25/44E-15E01	77-05-18	--	--	.00	.00
	77-10-13	--	--	.00	.00
	78-05-09	--	--	.00	.00
25/44E-15J01	77-05-17	--	--	.00	.00
	77-10-12	--	--	.01	.03
	78-05-10	--	--	.00	.00
25/44E-16F01	77-10-13	--	--	.00	.00
	78-05-09	--	--	.01	.03
25/44E-17A01	77-05-18	--	--	.00	.00
	77-10-13	--	--	.00	.00
	78-05-09	--	--	.00	.00

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
25/44E-17H01	473939117164401	47 39 39	117 16 44	01	77-05-18	1050	--	114	270
					77-10-13	1000	--	114	278
25/44E-17P01	473928117155301	47 39 28	117 15 53	01	78-05-09	0925	--	114	256
					77-05-18	0900	77	125	240
					77-05-18	0905	76	125	240
					77-05-18	0910	79	125	250
					77-05-18	0915	83	125	225
					77-05-18	0920	98	125	250
					77-05-18	0925	110	125	240
					77-10-13	1130	77	125	375
					77-10-13	1145	82	125	350
					77-10-13	1200	87	125	300
					77-10-13	1215	92	125	275
					77-10-13	1230	113	125	250
*					78-05-11	1155	70	125	290
					78-05-11	1205	75	125	275
					78-05-11	1215	80	125	250
					78-05-11	1225	95	125	250
					78-05-11	1235	120	125	250
25/44E-18F01	473952117173401	47 39 52	117 17 34	01	77-05-18	0820	--	110	221
					77-10-12	1640	--	110	263
					78-05-09	1610	--	110	258
25/44E-20K01	473858117161501	47 38 54	117 16 11	01	77-05-17	1340	--	129	360
					78-05-10	0950	--	129	294
25/44E-21J01	473857117142201	47 38 47	117 14 22	01	77-05-18	1105	--	117	348
					77-10-13	1010	--	117	310
					78-05-09	1025	--	117	241
25/44E-21L01	473852117150501	47 38 51	117 15 09	01	77-05-18	1355	--	177	297
					77-10-13	1355	--	177	537
					78-05-10	1346	--	177	247
25/44E-21M01	473835117152001	47 38 35	117 15 20	01	77-05-18	1312	--	181	286
					77-10-13	1310	--	181	337
					78-05-10	1300	--	181	269
25/44E-22H02	473902117130502	47 39 06	117 13 02	02	77-05-17	1635	--	160	250
					77-10-12	1435	--	160	380
25/44E-22R01	473833117130501	47 38 33	117 13 05	01	77-05-17	1610	--	176	222
					77-10-12	1455	--	176	410
25/44E-26L01	473805117122501	47 38 05	117 12 25	01	77-05-17	1545	--	166	340
					77-10-12	1520	--	166	390
					78-05-09	1320	--	166	320

* 25/44E-18D02 - Listed at end of Spokane County page 354.

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
25/44E-17M01	77-05-18	11.0	3.2	1.4	.00	1.4	.03
	77-10-13	12.2	3.0	1.3	.00	--	.02
	78-05-09	10.6	3.7	1.8	.00	--	.03
25/44E-17P01	77-05-18	11.0	1.6	1.2	.01	1.2	.11
	77-05-18	14.0	1.6	1.2	.01	1.2	.05
	77-05-18	12.0	2.6	1.4	.01	1.4	.02
	77-05-18	12.0	2.4	1.4	.01	1.4	.02
	77-05-18	12.0	4.7	1.5	.01	1.5	.25
	77-05-18	11.5	1.5	1.3	.01	1.3	.02
	77-10-13	12.0	6.4	2.4	.01	--	.11
	77-10-13	12.0	5.8	2.0	.01	--	.02
	77-10-13	12.0	3.1	1.7	.01	--	.09
	77-10-13	12.0	1.9	1.6	.01	--	.03
	77-10-13	12.0	1.7	1.3	.01	--	.05
	78-05-11	11.0	6.3	1.8	.00	--	.03
	78-05-11	11.0	4.6	1.6	.00	--	.04
	78-05-11	11.0	2.4	1.5	.00	--	.03
	78-05-11	11.0	2.3	1.4	.00	--	.03
	78-05-11	11.0	2.1	1.5	.00	--	.04
25/44E-18F01	77-05-18	9.8	1.4	1.2	.00	1.2	.02
	77-10-12	11.6	1.5	1.1	.00	--	.02
	78-05-09	10.6	1.7	1.4	.00	--	.03
25/44E-20K01	77-05-17	12.4	3.5	2.7	.00	2.7	.01
	78-05-10	15.6	3.7	2.6	.00	--	.03
25/44E-21J01	77-05-18	11.8	2.5	1.8	.00	1.8	.02
	77-10-13	12.6	3.7	2.3	.00	--	.02
	78-05-09	10.6	2.0	1.5	.00	--	.02
25/44E-21L01	77-05- 8	12.1	10	3.2	.00	3.2	.11
	77-10-13	12.2	4.5	3.0	.00	--	.02
	78-05-10	11.0	2.4	1.7	.00	--	.02
25/44E-21N01	77-05-18	11.3	3.0	2.4	.00	2.4	.01
	77-10-13	11.8	5.1	3.5	.00	--	.01
	78-05-10	10.8	3.5	2.0	.00	--	.02
25/44E-22H02	77-05-17	12.2	1.7	1.6	.00	1.6	.05
	77-10-12	11.2	3.7	2.6	.00	--	.03
25/44E-22R01	77-05-17	11.4	1.5	1.6	.00	1.6	.04
	77-10-12	13.2	3.6	2.8	.00	--	.02
25/44E-26L01	77-05-17	10.0	3.3	2.5	.00	2.5	.02
	77-10-12	9.8	3.7	2.8	.00	--	.04
	78-05-09	9.4	4.0	2.8	.00	--	.01

SPOKANE RIVER--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
25/44E-17H01	77-05-18	--	--	.03	.09
	77-10-13	--	--	.02	.06
	78-05-09	--	--	.03	.09
25/44E-17P01	77-05-18	--	--	.00	.00
	77-05-18	--	--	.00	.00
	77-05-18	--	--	.00	.00
	77-05-18	--	--	.00	.00
	77-05-18	--	--	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	78-05-11	--	--	.00	.00
	78-05-11	--	--	.00	.00
	78-05-11	--	--	.00	.00
	78-05-11	--	--	.00	.00
	78-05-11	--	--	.00	.00
25/44E-18F01	77-05-18	--	--	.00	.00
	77-10-12	--	--	.00	.00
	78-05-09	--	--	.00	.00
25/44E-20K01	77-05-17	--	--	.00	.00
	78-05-10	--	--	.00	.00
25/44E-21J01	77-05-18	--	--	.00	.00
	77-10-13	--	--	.00	.00
	78-05-09	--	--	.00	.00
25/44E-21L01	77-05-18	--	--	.01	.03
	77-10-13	.06	.08	.00	.00
	78-05-10	--	--	.00	.00
25/44E-21N01	77-05-18	--	--	.00	.00
	77-10-13	--	--	.00	.00
	78-05-10	--	--	.00	.00
25/44E-22H02	77-05-17	--	--	.00	.00
	77-10-12	--	--	.01	.03
25/44E-22P01	77-05-17	--	--	.01	.03
	77-10-12	--	--	.01	.03
25/44E-26L01	77-05-17	--	--	.01	.03
	77-10-12	--	--	.01	.03
	78-05-09	--	--	.01	.03

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
25/44E-27E01	473813117141701	47 38 13	117 14 17	01	77-05-18	1115	--	220	355
					77-10-13	1030	--	220	328
					78-05-09	1045	--	220	295
25/44E-27L01	473800117135801	47 38 00	117 13 58	01	77-05-18	0940	--	180	524
					77-10-12	1730	--	180	378
					78-05-09	1720	--	180	529
25/44E-28L01	473800117150001	47 38 00	117 15 00	01	77-05-18	1334	--	131	520
					77-10-13	1355	--	131	309
					78-05-10	1315	--	131	501
25/44E-28P01	473747117151801	47 37 47	117 15 18	01	77-05-18	1342	--	167	493
					78-05-10	1330	--	167	440
25/44E-28R01	473742117142501	47 37 42	117 14 25	01	77-05-18	0921	--	132	530
					77-10-12	1720	--	132	374
					78-05-09	1700	--	132	480
25/44E-29A01	473820117155201	47 38 20	117 15 52	01	77-05-18	0849	--	157	533
					78-05-09	1645	--	157	354
25/44E-29H01	473818117155401	47 38 18	117 15 54	01	77-10-12	1650	--	154	367
25/45E-01H03	474146117030501	47 41 46	117 03 05	01	77-05-18	1600	--	165	112
					78-05-11	0946	--	165	110
25/45E-02G02	474136117043701	47 41 36	117 04 37	01	77-05-16	1630	--	235	263
					77-10-11	1440	--	235	240
					78-05-08	1613	--	235	245
25/45E-03H01	474124117062101	47 41 24	117 06 21	01	77-05-16	1600	--	138	315
					78-05-10	1241	--	138	310
25/45E-05H01	474150117080701	47 41 50	117 08 07	01	77-05-18	1120	--	137	255
25/45E-05R02	474114117073301	47 40 19	117 07 53	01	77-10-13	1345	78	130	350
					77-10-13	1400	83	130	375
					77-10-13	1415	88	130	300
					77-10-13	1430	103	130	275
					77-10-13	1445	128	130	250
					78-05-16	0900	71	130	340
					78-05-16	0910	76	130	345
					78-05-16	0920	81	130	345
					78-05-16	0930	96	130	345
					78-05-16	0940	121	130	335
25/45E-06D03	474152117102401	47 41 52	117 10 24	01	77-05-18	1635	--	146	445
					77-10-13	1045	--	146	635
					78-05-10	1745	--	146	435
25/45E-07A03	474109117091603	47 41 09	117 09 16	03	77-05-17	1320	--	170	300
					77-10-13	1115	--	170	295

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
25/44E-27E01	77-05-18	11.6	4.2	2.6	.00	2.6	.03
	77-10-13	12.2	4.0	2.5	.00	--	.02
	78-05-09	10.8	3.5	2.1	.00	--	.02
25/44E-27L01	77-05-18	11.3	8.2	5.7	.00	5.7	.02
	77-10-12	11.6	7.3	3.7	.00	--	.03
	78-05-09	11.5	7.6	4.8	.00	--	.02
25/44E-28L01	77-05-18	11.1	7.3	5.9	.01	5.9	.02
	77-10-13	11.8	8.4	6.0	.00	--	.02
	78-05-10	11.1	8.9	5.8	.00	--	.02
25/44E-28P01	77-05-18	11.3	7.2	5.8	.00	5.8	.01
	78-05-10	10.2	6.0	5.6	.00	--	.00
25/44E-26N01	77-05-18	11.0	8.3	5.7	.00	5.7	.04
	77-10-12	11.4	7.3	3.7	.00	--	.03
	78-05-09	11.1	7.4	4.8	.00	--	.02
25/44E-29A01	77-05-18	11.2	8.9	5.6	.00	5.6	.07
	78-05-09	9.1	7.7	3.6	.00	--	.02
25/44E-29H01	77-10-12	9.6	7.1	3.7	.00	--	.03
25/45E-01H03	77-05-18	10.8	.7	.78	.00	.78	.02
	78-05-11	10.8	.9	.74	.00	--	.02
25/45E-02G02	77-05-16	9.4	.9	.89	.00	.89	.03
	77-10-11	9.4	.9	.89	.00	--	.03
	78-05-08	9.6	1.1	1.0	.00	--	.02
25/45E-03H01	77-05-16	9.0	.8	.94	.00	.94	.03
	78-05-10	8.8	1.2	1.1	.00	--	.01
25/45E-05H01	77-05-18	8.8	.7	.84	.00	.84	.01
25/45E-05H02	77-10-13	11.0	1.0	1.4	.01	--	.05
	77-10-13	10.0	1.1	1.2	.00	--	.05
	77-10-13	10.0	--	1.2	.01	--	.05
	77-10-13	10.0	1.4	1.2	.00	--	.04
	77-10-13	10.0	1.0	1.2	.00	--	.05
	78-05-16	9.0	1.5	1.3	.00	--	.02
	78-05-16	9.0	1.4	1.3	.00	--	.03
	78-05-16	9.0	1.4	1.3	.00	--	.03
	78-05-16	9.0	1.5	1.3	.00	--	.03
	78-05-16	9.0	1.6	1.3	.00	--	.04
25/45E-06D03	77-05-18	10.8	7.0	4.4	.00	4.4	.01
	77-10-13	12.2	15	6.0	.00	--	.03
	78-05-10	10.4	7.2	5.2	.00	--	.02
25/45E-07A03	77-05-17	8.8	1.0	.84	.00	.84	.02
	77-10-13	9.4	1.0	.83	.00	--	.02

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
25/44E-27E01	77-05-18	--	--	.00	.00
	77-10-13	--	--	.00	.00
	78-05-09	--	--	.00	.00
25/44E-27L01	77-05-18	--	--	.01	.03
	77-10-12	--	--	.02	.06
	78-05-09	--	--	.01	.03
25/44E-28L01	77-05-18	--	--	.01	.03
	77-10-13	--	--	.01	.03
	78-05-10	--	--	.01	.03
25/44E-28P01	77-05-18	--	--	.01	.03
	78-05-10	--	--	.04	.12
25/44E-28R01	77-05-18	--	--	.01	.03
	77-10-12	.10	.13	.03	.09
	78-05-09	--	--	.01	.03
25/44E-29A01	77-05-18	--	--	.01	.03
	78-05-09	--	--	.02	.06
25/44E-29H01	77-10-12	--	--	.03	.09
25/45E-01H03	77-05-18	--	--	.00	.00
	78-05-11	--	--	.00	.00
25/45E-02G02	77-05-16	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-08	--	--	.00	.00
25/45E-03H01	77-05-16	--	--	.00	.00
	78-05-10	--	--	.00	.00
25/45E-05H01	77-05-18	--	--	.00	.00
25/45E-05R02	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	77-10-13	--	--	.00	.00
	78-05-16	--	--	.00	.00
	78-05-16	--	--	.00	.00
	78-05-16	--	--	.00	.00
	78-05-16	--	--	.00	.00
	78-05-16	--	--	.00	.00
25/45E-06D03	77-05-18	--	--	.01	.03
	77-10-13	.10	.13	.01	.03
	78-05-10	--	--	.01	.03
25/45E-07A03	77-05-17	--	--	.00	.00
	77-10-13	--	--	.00	.00

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
25/45E-07A03	474109117091603	47 41 09	117 09 16	03	78-05-08	1401	--	170	275
25/45E-08R02	474203117075301	47 41 09	117 07 55	01	77-10-17	0830	103	165	200
					77-10-17	0845	108	165	200
					77-10-17	0900	113	165	195
					77-10-17	0915	153	165	200
					77-10-17	0930	128	165	205
25/45E-09N01	474059117070601	47 40 59	117 07 06	01	77-05-16	1540	--	107	135
					78-05-10	1250	--	107	140
25/45E-10F01	474054117060101	47 40 54	117 06 01	01	77-05-18	0900	--	85	101
					77-10-11	1700	--	85	73
					78-05-11	0900	--	85	155
25/45E-11K02	474033117044001	47 40 31	117 04 39	01	77-05-16	1505	--	225	94
					78-05-11	1013	--	225	115
25/45E-14C01	474004117044101	47 40 03	117 04 49	01	77-05-16	1430	--	238	210
					78-05-10	1255	--	238	185
25/45E-15C01	474004117060301	47 40 04	117 06 01	01	77-05-16	1300	--	157	243
					78-05-11	1409	--	157	240
25/45E-15R01	473925117053201	47 39 26	117 05 47	01	77-05-16	1410	--	155	132
					77-10-12	1015	--	155	100
					78-05-11	0830	--	155	145
25/45E-17D02	474016117085802	47 40 16	117 08 58	02	77-05-17	1215	--	213	187
25/45E-17D03	474016117085803	47 40 16	117 08 58	03	77-10-12	1150	--	215	155
					78-05-08	1415	--	215	170
25/45E-17P01	473925117083601	47 39 25	117 08 36	01	77-05-16	1230	--	203	180
25/45E-17P02	473925117083602	47 39 25	117 08 36	02	77-10-12	1130	--	218	165
					78-05-08	1427	--	218	200
25/45E-18R01	473929117092601	47 39 29	117 09 26	01	77-05-16	1200	--	190	150
					77-10-12	1250	--	190	120
25/45E-18R02	473929117092602	47 39 29	117 09 26	02	78-05-08	1445	--	227	170
26/42E-02N01	474628117282301	47 46 28	117 28 23	01	77-05-19	1120	--	29	280
					78-05-09	1035	--	29	308
26/42E-03E01S	474652117294101	47 46 52	117 29 41	01	77-05-19	1030	--	--	255
					77-10-12	1130	--	--	244
					78-05-09	1015	--	--	265
26/42E-05C03	474704117314901	47 47 04	117 31 49	01	77-05-16	1600	--	22	258
					77-10-11	1615	--	22	288
					78-05-08	1220	--	22	273
26/42E-05E01	474650117322001	47 46 50	117 32 20	01	77-05-25	1000	21	63	420
					77-05-25	1005	24	63	440
					77-05-25	1010	27	63	425

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
25/45E-07A03	78-05-08	8.4	1.9	1.1	.00	--	.02
25/45E-08H02	77-10-17	12.0	.8	1.0	.00	--	.01
	77-10-17	12.0	.8	.76	.00	--	.04
	77-10-17	12.0	.9	.76	.00	--	.09
	77-10-17	12.0	1.0	.80	.00	--	.03
	77-10-17	12.0	.8	.86	.00	--	.02
25/45E-09H01	77-05-16	10.6	.7	.78	.01	.79	.04
	78-05-10	10.4	.9	.72	.00	--	.01
25/45E-10F01	77-05-18	8.1	.4	.35	.00	.35	.02
	77-10-11	9.6	.4	.36	.00	--	.02
	78-05-11	9.0	1.5	.85	.00	--	.01
25/45E-11K02	77-05-16	10.8	.6	.64	.00	.64	.03
	78-05-11	10.6	1.3	1.0	.00	--	.01
25/45E-14C01	77-05-16	11.0	2.3	2.8	.00	2.8	.01
	78-05-10	10.6	2.0	2.4	.00	--	.01
25/45E-15C01	77-05-16	10.8	2.2	1.5	.00	1.5	.01
	78-05-11	11.4	3.3	2.5	.00	--	.01
25/45E-15H01	77-05-16	9.4	2.3	1.0	.00	1.0	.03
	77-10-12	9.2	2.3	1.1	.00	--	.03
	78-05-11	9.0	3.2	1.4	.00	--	.02
25/45E-17D02	77-05-17	11.0	1.0	.81	.00	.81	.02
25/45E-17D03	77-10-12	10.8	--	.82	.00	--	.03
	78-05-08	10.8	.9	.80	.00	--	.02
25/45E-17P01	77-05-16	10.6	1.4	1.5	.00	1.5	.02
25/45E-17P02	77-10-12	10.6	1.2	1.4	.00	--	.03
	78-05-08	10.4	1.4	1.3	.00	--	.01
25/45E-18R01	77-05-16	10.8	1.1	1.0	.00	1.0	.04
	77-10-12	10.4	.8	.93	.00	--	.04
25/45E-18R02	78-05-08	10.2	.9	.89	.00	--	.02
26/42E-02N01	77-05-19	11.0	1.7	.01	.00	.01	.10
	78-05-09	11.4	2.2	.24	.00	--	.04
26/42E-03E01S	77-05-19	10.5	1.8	.82	.00	.82	.04
	77-10-12	10.5	1.7	.85	.00	--	.03
	78-05-09	10.4	1.9	.91	.00	--	.02
26/42E-05C03	77-05-16	9.9	1.9	.35	.00	.35	.05
	77-10-11	11.1	2.0	.31	.00	--	.02
	78-05-08	10.0	2.1	.20	.00	--	.02
26/42E-05E01	77-05-25	17.0	2.3	1.6	.00	1.6	.04
	77-05-25	14.0	2.3	1.6	.00	1.6	.05
	77-05-25	16.0	2.1	1.6	.01	1.6	.09

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
25/45E-07A03	78-05-08	--	--	.00	.00
25/45E-08R02	77-10-17	--	--	.00	.00
	77-10-17	--	--	.00	.00
	77-10-17	--	--	.00	.00
	77-10-17	--	--	.00	.00
	77-10-17	--	--	.00	.00
25/45E-09R01	77-05-16	--	--	.01	.03
	78-05-10	--	--	.00	.00
25/45E-10F01	77-05-18	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-11	--	--	.00	.00
25/45E-11K02	77-05-16	--	--	.00	.00
	78-05-11	--	--	.00	.00
25/45E-14C01	77-05-16	--	--	.00	.00
	78-05-10	--	--	.00	.00
25/45E-15C01	77-05-16	--	--	.01	.03
	78-05-11	--	--	.01	.03
25/45E-15R01	77-05-16	--	--	.02	.06
	77-10-12	--	--	.02	.06
	78-05-11	--	--	.02	.06
25/45E-17D02	77-05-17	--	--	.00	.00
25/45E-17D03	77-10-12	--	--	.00	.00
	78-05-08	--	--	.00	.00
25/45E-17P01	77-05-16	--	--	.00	.00
25/45E-17P02	77-10-12	--	--	.00	.00
	78-05-08	--	--	.00	.00
25/45E-18R01	77-05-16	--	--	.00	.00
	77-10-12	--	--	.00	.00
25/45E-18R02	78-05-08	--	--	.00	.00
26/42E-02N01	77-05-19	--	--	.01	.03
	78-05-09	--	--	.02	.06
26/42E-03E01S	77-05-19	--	--	.02	.06
	77-10-12	--	--	.02	.06
	78-05-09	--	--	.02	.06
26/42E-05C03	77-05-16	--	--	.01	.03
	77-10-11	--	--	.01	.03
	78-05-08	--	--	.01	.03
26/42E-05E01	77-05-25	--	--	.02	.06
	77-05-25	--	--	.03	.09
	77-05-25	--	--	.03	.09

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
26/42E-05E01	474650117322001	47 46 50	117 32 20	01	77-05-25	1015	31	63	410
					77-05-25	1020	46	63	400
					77-10-11	0815	17	63	485
					77-10-11	0830	20	63	485
					77-10-11	0845	42	63	480
					77-10-11	0900	27	63	465
					77-10-11	0915	23	63	480
					77-10-11	0930	52	63	495
					78-05-09	0800	16	63	375
					78-05-09	0820	21	63	365
					78-05-09	0840	28	63	400
					78-05-09	0900	41	63	335
					78-05-09	0920	65	63	325
26/42E-05F02	474648117314301	47 46 48	117 31 43	01	77-05-16	1613	--	25	315
					77-10-11	1550	--	25	285
					78-05-08	1200	--	25	272
26/42E-06L01	474645117330501	47 46 45	117 33 05	01	77-05-18	1550	--	94	297
					77-10-11	1635	--	94	315
26/42E-07A04	474616117323101	47 46 16	117 32 31	01	77-05-16	1649	--	126	241
					77-10-11	1520	--	126	205
					78-05-08	1130	--	126	174
26/42E-08A01	474619117310301	47 46 19	117 31 03	01	77-05-19	0838	--	300	327
					77-10-11	1700	--	300	348
					78-05-08	1530	--	300	324
26/42E-08N01	474538117320901	47 45 35	117 32 02	01	77-05-16	1225	--	58	300
					77-10-11	1150	--	58	374
					78-05-08	1110	--	58	313
26/42E-10F01	474605117291701	47 45 58	117 29 15	01	77-05-19	1345	--	9.0	292
					77-10-12	1100	--	9.0	273
					78-05-11	0955	--	9.0	350
26/42E-11F01	474602117280101	47 46 02	117 28 01	01	77-05-17	1330	--	38	280
*					77-10-12	1215	--	38	293
*					78-05-09	1120	--	38	300
26/42E-12L01	474550117253001	47 45 49	117 26 32	01	77-05-16	1435	--	126	342
					77-10-11	1435	--	126	317
					78-05-08	1450	--	126	349
26/42E-17A02	474524117310701	47 45 24	117 31 07	01	77-05-16	1115	--	72	280
					77-10-11	1130	--	72	248
					78-05-08	1500	--	72	169
26/42E-20B01	474436117312601	47 44 36	117 31 26	01	77-05-16	1720	--	140	343

* 26/42E-11J01S - Listed at end of Spokane County page 355.
* 26/42E-12A01S - Listed at end of Spokane County page 356.

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
26/42E-05E01	77-05-25	17.0	2.2	1.5	.01	1.5	.12
	77-05-25	11.9	2.3	1.6	.01	1.6	.11
	77-10-11	12.0	3.7	1.2	.00	--	.03
	77-10-11	12.0	2.6	1.4	.00	--	.03
	77-10-11	12.0	2.4	1.3	.00	--	.03
	77-10-11	12.0	2.0	1.1	.01	--	.06
	77-10-11	12.0	3.0	1.3	.00	--	.04
	77-10-11	12.0	2.9	1.3	.01	--	.06
	78-05-09	10.5	5.0	.41	.00	--	.01
	78-05-09	11.0	2.2	.42	.00	--	.03
	78-05-09	11.0	2.1	.80	.00	--	.02
	78-05-09	11.0	1.4	.00	.00	--	.02
	78-05-09	11.0	1.4	.00	.00	--	.02
26/42E-05F02	77-05-16	9.5	1.7	.05	.00	.05	.02
	77-10-11	12.7	1.6	.07	.00	--	.04
	78-05-08	10.1	2.5	1.6	.01	--	.04
26/42E-06L01	77-05-18	11.4	2.2	1.2	.01	1.2	.02
	77-10-11	13.3	2.7	1.4	.00	--	.03
26/42E-07A04	77-05-16	9.6	3.3	.85	.00	.85	.03
	77-10-11	13.3	3.2	.34	.00	--	.02
	78-05-08	9.5	1.9	.37	.00	--	.03
26/42E-08A01	77-05-19	10.5	1.7	.00	.00	.00	.03
	77-10-11	11.1	1.6	.00	.00	--	.03
	78-05-08	11.0	1.9	.00	.00	--	.02
26/42E-08N01	77-05-16	10.4	3.9	2.8	.00	2.8	.02
	77-10-11	13.1	3.6	2.6	.00	--	.02
	78-05-08	11.8	3.7	2.5	.00	--	.02
26/42E-10F01	77-05-19	8.4	1.4	.04	.00	.04	.04
	77-10-12	9.7	1.2	.10	.00	--	.05
	78-05-11	8.4	2.1	.04	.00	--	.04
26/42E-11F01	77-05-17	11.2	2.7	1.4	.00	1.4	.04
	77-10-12	11.0	2.8	1.3	.00	--	.04
	78-05-08	10.9	3.2	1.4	.00	--	.03
26/42E-12L01	77-05-16	10.3	5.8	2.7	.00	2.7	.02
	77-10-11	11.9	5.4	2.4	.00	--	.02
	78-05-08	11.4	5.9	2.5	.00	--	.04
26/42E-17A02	77-05-16	11.4	2.9	.00	.01	.00	.52
	77-10-11	13.3	4.1	.00	.01	--	.63
	78-05-08	8.8	1.2	.01	.00	--	.35
26/42E-20H01	77-05-16	10.0	3.8	2.1	.00	2.1	.04

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
26/42E-05E01	77-05-25	--	--	.01	.03
	77-05-25	--	--	.00	.00
	77-10-11	--	--	.03	.09
	77-10-11	--	--	.02	.06
	77-10-11	--	--	.03	.09
	77-10-11	--	--	.02	.06
	77-10-11	--	--	.02	.06
	77-10-11	--	--	.02	.06
	78-05-09	--	--	.02	.06
	78-05-09	--	--	.01	.03
	78-05-09	--	--	.02	.06
	78-05-09	--	--	.02	.06
	78-05-09	--	--	.01	.03
26/42E-05F02	77-05-16	--	--	.07	.21
	77-10-11	--	--	.12	.37
	78-05-08	--	--	.31	.95
26/42E-06L01	77-05-18	--	--	.04	.12
	77-10-11	--	--	.04	.12
26/42E-07A04	77-05-16	--	--	.04	.12
	77-10-11	.04	.06	.04	.12
	78-05-08	--	--	.04	.12
26/42E-08A01	77-05-19	--	--	.01	.03
	77-10-11	--	--	.00	.00
	78-05-08	--	--	.01	.03
26/42E-08N01	77-05-16	--	--	.04	.12
	77-10-11	--	--	.03	.09
	78-05-08	--	--	.04	.12
26/42E-10F01	77-05-19	--	--	.03	.09
	77-10-12	--	--	.02	.06
	78-05-11	--	--	.03	.09
26/42E-11F01	77-05-17	--	--	.00	.00
	77-10-12	--	--	.01	.03
	78-05-09	--	--	.01	.03
26/42E-12L01	77-05-16	--	--	.00	.00
	77-10-11	.08	.10	.00	.00
	78-05-08	--	--	.00	.00
26/42E-17A02	77-05-16	--	--	.08	.25
	77-10-11	--	--	.02	.06
	78-05-08	--	--	.08	.25
26/42E-20B01	77-05-16	--	--	.07	.21

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
26/42E-20R01	474436117312601	47 44 36	117 31 26	01	77-10-11	1035	--	140	349
					78-05-08	1045	--	140	330
26/42E-21F02	474417117302701	47 44 17	117 30 27	01	77-05-19	1615	--	--	482
					77-10-11	1040	--	--	418
					78-05-08	1030	--	--	301
26/42E-21R03	474352117295201	47 43 52	117 29 52	01	77-05-19	1700	--	93	820
					77-10-13	0940	--	93	790
					78-05-11	0900	--	93	730
26/42E-23P01	474354117275001	47 43 50	117 27 49	01	77-05-16	1500	--	578	300
					77-10-12	1345	--	578	239
26/42E-27F01	474323117292801	47 43 23	117 29 28	01	77-05-25	0800	70	126	275
					77-05-25	0805	76	126	300
					77-05-25	0810	79	126	280
					77-05-25	0815	83	126	300
					77-05-25	0820	97	126	285
					77-05-25	0825	120	126	270
					77-10-11	1030	75	126	530
					77-10-11	1035	78	126	510
					77-10-11	1040	85	126	520
					77-10-11	1045	81	126	510
					77-10-11	1050	100	126	510
					77-10-11	1100	116	126	480
					78-05-09	1015	71	126	500
					78-05-09	1035	76	126	505
					78-05-09	1055	81	126	500
					78-05-09	1115	96	126	500
					78-05-09	1135	121	126	450
26/42E-27N01	474304117294401	47 43 04	117 29 44	01	77-05-19	1700	--	129	285
					77-10-13	0920	--	129	292
					78-05-11	0800	--	129	300
26/42E-34N03	474213117293303	47 42 13	117 29 33	03	77-05-16	1345	--	71	300
					78-05-09	0915	--	71	306
26/43E-03N01	474623117220001	47 46 23	117 22 00	01	77-05-17	1537	--	180	298
					77-10-12	1450	--	180	639
					78-05-09	1400	--	180	390
26/43E-03P01	474628117213201	47 46 27	117 21 24	01	77-05-17	1542	--	203	300
					77-10-12	1520	--	203	650
					78-05-09	1420	--	203	490
26/43E-05D01	474707117241901	47 47 07	117 24 19	01	77-05-17	1620	--	30	360
					77-10-11	1540	--	30	351

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* 26/43E-05L01S - Listed at end of Spokane County page 357.

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
26/42E-20H01	77-10-11	9.2	3.5	1.9	.00	--	.01
	78-05-08	11.5	5.0	2.4	.00	--	.02
26/42E-21F02	77-05-19	11.2	9.0	2.8	.01	2.8	.03
	77-10-11	11.5	4.8	2.3	.00	--	.03
	78-05-08	10.1	4.1	2.2	.00	--	.02
26/42E-21H03	77-05-19	13.4	15	3.4	.00	3.4	.03
	77-10-13	11.7	12	3.5	.00	--	.03
	78-05-11	12.0	13	3.5	.00	--	.01
26/42E-23P01	77-05-16	10.8	1.3	.00	.00	.00	.21
	77-10-12	10.6	.9	.00	.01	--	.08
26/42E-27F01	77-05-25	14.0	7.6	3.5	.02	3.5	.12
	77-05-25	14.0	7.5	4.0	.00	4.0	.04
	77-05-25	14.0	7.5	4.0	.01	4.0	.05
	77-05-25	15.0	7.3	4.0	.00	4.0	.03
	77-05-25	14.9	7.0	4.0	.01	4.0	.04
	77-05-25	14.0	6.2	3.5	.01	3.5	.12
	77-10-11	13.0	7.6	3.8	.01	--	.03
	77-10-11	13.0	7.4	4.1	.00	--	.05
	77-10-11	13.0	7.4	4.2	.00	--	.04
	77-10-11	13.0	7.2	4.0	.01	--	.05
	77-10-11	13.0	7.0	4.1	.01	--	.03
	77-10-11	13.0	6.1	3.2	.01	--	.06
	78-05-09	13.0	7.8	4.4	.01	--	.03
	78-05-09	13.0	7.8	4.5	.01	--	.02
	78-05-09	13.0	7.9	4.5	.00	--	.06
	78-05-09	13.0	7.4	4.3	.00	--	.03
	78-05-09	13.0	6.4	3.6	.00	--	.02
26/42E-27N01	77-05-19	11.9	4.1	1.7	.00	1.7	.03
	77-10-13	11.7	3.8	1.7	.01	--	.02
	78-05-11	11.0	4.2	1.6	.00	--	.01
26/42E-34N03	77-05-16	11.2	4.9	1.7	.00	1.7	.05
	78-05-09	11.4	5.0	1.7	.00	--	.04
26/43E-03N01	77-05-17	11.9	3.9	1.8	.00	1.8	.02
	77-10-12	12.5	20	8.4	.00	--	.06
	78-05-09	11.6	12	2.2	.00	--	.04
26/43E-03P01	77-05-17	12.1	3.7	1.8	.00	1.8	.02
	77-10-12	12.2	22	4.8	.00	--	.01
	78-05-09	11.6	16	5.8	.00	--	.03
26/43E-05D01	77-05-17	10.6	10	.60	.00	.60	.05
	77-10-11	10.5	4.6	.34	.00	--	.02

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
26/42E-20R01	77-10-11	--	--	.07	.21
	78-05-08	--	--	.01	.03
26/42E-21F02	77-05-19	--	--	.01	.03
	77-10-11	--	--	.01	.03
	78-05-08	--	--	.07	.21
26/42E-21R03	77-05-19	--	--	.02	.06
	77-10-13	--	--	.02	.06
	78-05-11	--	--	.02	.06
26/42E-23P01	77-05-16	--	--	.00	.00
	77-10-12	--	--	.00	.00
26/42E-27F01	77-05-25	--	--	.02	.06
	77-05-25	--	--	.05	.15
	77-05-25	--	--	.04	.12
	77-05-25	--	--	.05	.15
	77-05-25	--	--	.04	.12
	77-05-25	--	--	.02	.06
	77-10-11	--	--	.03	.09
	77-10-11	--	--	.04	.12
	77-10-11	--	--	.04	.12
	77-10-11	--	--	.03	.09
	77-10-11	--	--	.04	.12
	77-10-11	--	--	.01	.03
	78-05-09	--	--	.03	.09
	78-05-09	--	--	.03	.09
	78-05-09	--	--	.05	.15
	78-05-09	--	--	.05	.15
	78-05-09	--	--	.02	.06
26/42E-27N01	77-05-19	--	--	.01	.03
	77-10-13	--	--	.01	.03
	78-05-11	--	--	.01	.03
26/42E-34N03	77-05-16	--	--	.02	.06
	78-05-09	--	--	.02	.06
26/43E-03N01	77-05-17	--	--	.01	.03
	77-10-12	--	--	.00	.00
	78-05-09	--	--	.00	.00
26/43E-03P01	77-05-17	--	--	.01	.03
	77-10-12	--	--	.00	.00
	78-05-09	--	--	.00	.00
26/43E-05D01	77-05-17	--	--	.05	.15
	77-10-11	--	--	.03	.09

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICROMHOS)
26/43E-05D01	474707117241901	47 47 07	117 24 19	01	78-05-08	1430	--	30	530
26/43E-06G01	474658117245601	47 46 58	117 24 56	01	77-05-17	1130	--	30	260
					77-10-11	1605	--	30	329
26/43E-06J01	474641117244801	47 46 41	117 24 48	01	78-05-09	1500	--	30	350
					77-05-17	1145	--	75	300
					77-10-11	1810	--	75	417
26/43E-07G01	474607117244701	47 46 07	117 24 47	01	78-05-08	1530	--	75	440
					78-05-09	1240	109	--	400
					78-05-09	1300	114	--	340
					78-05-09	1320	119	--	310
26/43E-07K01	474549117250201	47 45 45	117 25 03	01	77-05-16	1353	--	164	269
					77-10-11	1400	--	164	361
26/43E-07P01	474530117251601	47 45 30	117 25 16	01	78-05-08	1410	--	164	300
					77-05-16	1418	--	126	246
					77-10-11	1415	--	126	387
26/43E-08B04	474618117235801	47 46 20	117 23 54	01	78-05-08	1430	--	126	291
					77-05-17	1507	--	90	301
26/43E-08G02	474608117235101	47 46 08	117 23 51	01	77-10-12	1420	--	90	432
					78-05-09	1355	--	90	399
					77-05-19	1145	--	49	710
					77-10-11	1430	--	49	602
26/43E-10K01	474552117211801	47 45 52	117 21 18	01	78-05-10	1000	--	49	610
					77-05-17	1554	--	107	610
					77-10-12	1550	--	107	637
					78-05-09	1440	--	107	550
26/43E-16D02	474518117230501	47 45 18	117 23 05	01	77-05-18	1335	--	285	340
					77-10-11	1150	--	285	312
26/43E-17B01	474525117234101	47 45 25	117 23 41	01	78-05-10	1100	--	285	350
					77-10-11	1355	--	220	340
					78-05-10	0940	--	220	336
26/43E-17J01	474503117233101	47 45 03	117 23 31	01	77-05-18	1530	--	248	319
					77-10-11	1325	--	248	304
26/43E-19A01	474436117245501	47 44 34	117 24 38	01	78-05-10	1030	--	248	311
					77-05-16	1523	--	163	269
					77-10-11	1330	--	163	261
26/43E-19L03	474358117251601	47 43 58	117 25 16	01	78-05-08	1340	--	163	308
					77-05-16	1325	--	--	341
					77-10-11	1320	--	--	334
					78-05-08	1330	--	--	321
26/43E-20D01	474437117243501	47 44 37	117 24 35	01	77-05-16	1340	--	286	215

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
26/43E-05D01	78-05-08	10.5	14	.80	.08	--	.01
26/43E-06G01	77-05-17	11.8	6.8	1.5	.08	1.5	.02
	77-10-11	12.1	6.8	1.5	.08	--	.01
	78-05-08	11.0	12	1.5	.08	--	.01
26/43E-06J01	77-05-17	10.6	11	1.4	.00	1.4	.04
	77-10-11	9.9	15	1.5	.00	--	.01
	78-05-08	10.7	11	1.4	.00	--	.01
26/43E-07G01	78-05-09	11.0	3.3	2.0	.00	--	.02
	78-05-09	11.0	2.9	1.7	.01	--	.06
	78-05-09	11.0	2.5	1.5	.01	--	.05
26/43E-07K01	77-05-16	10.6	3.2	1.6	.00	1.6	.01
	77-10-11	11.7	4.6	2.2	.00	--	.01
	78-05-08	10.8	3.8	1.6	.00	--	.03
26/43E-07P01	77-05-16	10.8	3.2	1.6	.00	1.6	.01
	77-10-11	11.5	5.9	2.2	.00	--	.01
	78-05-08	11.3	3.9	1.6	.00	--	.04
26/43E-08R04	77-05-17	12.4	4.3	1.8	.00	1.8	.05
	77-10-12	12.7	21	8.4	.01	--	.01
	78-05-09	12.4	10	1.9	.00	--	.03
26/43E-08G02	77-05-19	12.0	24	3.2	.01	3.2	.09
	77-10-11	12.2	18	2.8	.01	--	.04
	78-05-10	12.0	12	3.1	.00	--	.04
26/43E-10K01	77-05-17	11.5	19	8.8	.00	8.8	.02
	77-10-12	12.3	19	8.4	.00	--	.02
	78-05-09	11.2	16	8.6	.00	--	.02
26/43E-16D02	77-05-18	11.4	16	2.6	.00	2.6	.02
	77-10-11	10.7	17	1.7	.00	--	.01
	78-05-10	11.0	12	2.6	.00	--	.02
26/43E-17H01	77-10-11	10.0	3.0	1.7	.00	--	.01
	78-05-10	11.0	3.3	1.8	.00	--	.01
26/43E-17J01	77-05-18	10.8	2.2	1.4	.00	1.4	.04
	77-10-11	10.0	2.1	1.2	.00	--	.02
	78-05-10	14.7	3.0	1.7	.00	--	.01
26/43E-19A01	77-05-16	10.5	1.9	1.1	.00	1.1	.02
	77-10-11	11.3	1.7	1.0	.00	--	.02
	78-05-08	11.2	4.0	2.2	.00	--	.03
26/43E-19L03	77-05-16	11.3	4.3	2.3	.00	2.3	.02
	77-10-11	11.1	3.9	1.9	.00	--	.02
	78-05-08	11.4	4.6	2.1	.01	--	.03
26/43E-20D01	77-05-16	10.9	1.8	1.1	.00	1.1	.01

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
26/43E-04N01	78-05-08	--	--	.07	.21
26/43E-06G01	77-05-17	--	--	.07	.21
	77-10-11	--	--	.04	.12
	78-05-08	--	--	.08	.25
26/43E-06J01	77-05-17	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-08	--	--	.00	.00
26/43E-07G01	78-05-09	--	--	.00	.00
	78-05-09	--	--	.00	.00
	78-05-09	--	--	.00	.00
26/43E-07K01	77-05-16	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-08	--	--	.00	.00
26/43E-07P01	77-05-16	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-08	--	--	.00	.00
26/43E-08R04	77-05-17	--	--	.01	.03
	77-10-12	.18	.19	.00	.00
	78-05-09	--	--	.00	.00
26/43E-08S02	77-05-19	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-10	--	--	.00	.00
26/43E-10F01	77-05-17	--	--	.00	.00
	77-10-12	--	--	.00	.00
	78-05-09	--	--	.00	.00
26/43E-16D02	77-05-18	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-10	--	--	.00	.00
26/43E-17B01	77-10-11	--	--	.00	.00
	78-05-10	--	--	.00	.00
26/43E-17J01	77-05-18	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-10	--	--	.00	.00
26/43E-19A01	77-05-16	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-08	--	--	.00	.00
26/43E-19L03	77-05-16	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-08	--	--	.00	.00
26/43E-20N01	77-05-16	--	--	.00	.00

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
26/43E-20D01	474437117243501	47 44 37	117 24 35	01	77-10-11	1345	--	286	256
					78-05-08	1400	--	286	306
26/43E-20H01	474351117242901	47 43 51	117 24 29	01	77-05-17	1438	--	238	249
					77-10-12	1355	--	238	270
					78-05-09	1340	--	238	261
26/43E-21E02	474414117231001	47 44 14	117 23 10	01	77-10-11	1230	--	246	387
26/43E-21K01	474355117221101	47 43 54	117 22 05	01	78-05-11	1045	--	260	365
26/43E-27E01	474326117220801	47 43 26	117 22 08	01	77-05-16	1250	--	258	260
					77-10-11	1150	--	258	310
					78-05-11	1330	--	258	285
26/43E-28Q01	474255117222401	47 42 54	117 22 24	01	77-10-18	1300	205	274	350
					77-10-18	1315	210	274	310
					77-10-18	1330	215	274	305
					77-10-18	1345	225	274	285
					77-10-18	1400	235	274	280
26/43E-28Q01	474255117224401	47 42 55	117 22 44	01	78-05-10	0800	183	274	350
					78-05-10	0820	188	274	325
					78-05-10	0845	193	274	300
					78-05-10	0910	208	274	300
					78-05-10	0930	226	274	270
26/43E-30F01	474325117251701	47 43 25	117 25 17	01	77-05-16	1315	--	312	310
					77-10-11	1300	--	312	317
					78-05-08	1310	--	312	310
26/43E-30H01	474326117244901	47 43 26	117 24 49	01	77-05-18	1115	--	310	240
					77-10-12	1305	--	310	215
					78-05-09	1240	--	310	243
26/43E-30H02	474305117244401	47 43 05	117 24 44	01	77-05-17	1414	--	293	241
					77-10-12	1335	--	293	263
					78-05-09	1330	--	293	235
26/43E-31A01	474242117244901	47 42 42	117 24 49	01	77-05-17	1020	--	270	208
					77-10-12	1055	--	270	242
					78-05-09	1040	--	270	224
26/43E-34P01	474209117213901	47 42 08	117 21 39	01	77-05-16	1410	--	210	340
					77-10-11	1040	--	210	340
					78-05-10	1300	--	210	276
26/45E-25J01	474305117024901	47 43 05	117 02 49	01	77-05-31	0905	116	263	225
					77-05-31	0910	119	263	290
					77-05-31	0915	123	263	275
					77-05-31	0920	138	263	270
					77-05-31	0925	163	263	270

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
26/43E-20D01	77-10-11	12.0	1.6	1.0	.00	--	.01
	78-05-08	11.3	3.8	2.1	.00	--	.04
26/43E-20N01	77-05-17	11.0	2.3	1.4	.00	1.4	.03
	77-10-12	11.7	2.0	1.4	.01	--	.02
	78-05-09	10.6	2.5	1.5	.00	--	.01
26/43E-21E02	77-10-11	10.0	3.5	2.4	.00	--	.02
26/43E-21R01	78-05-11	11.0	7.1	.91	.00	--	.01
26/43E-27E01	77-05-16	10.4	3.5	1.2	.00	1.2	.01
	77-10-11	11.6	5.9	1.7	.00	--	.02
	78-05-11	11.0	5.6	1.2	.00	--	.02
26/43E-28Q01	77-10-18	12.0	3.3	1.8	.00	--	.07
	77-10-18	12.0	2.6	1.4	.01	--	.08
	77-10-18	12.0	2.6	1.4	.00	--	.08
	77-10-18	12.0	2.3	1.2	.01	--	.04
	77-10-18	12.0	2.7	1.1	.01	--	.08
26/43E-28U01	78-05-10	12.0	3.9	2.3	.00	--	.01
	78-05-10	12.0	4.3	2.6	.01	--	.02
	78-05-10	12.0	4.0	2.3	.00	--	.02
	78-05-10	12.0	2.9	1.5	.00	--	.04
	78-05-10	11.0	2.4	1.2	.00	--	.03
26/43E-30F01	77-05-16	11.4	4.6	2.4	.00	2.4	.03
	77-10-11	12.9	4.3	1.8	.00	--	.03
	78-05-08	11.6	4.5	2.1	.00	--	.04
26/43E-30H01	77-05-18	10.8	1.2	.88	.01	.89	.02
	77-10-12	11.0	1.7	.79	.01	--	.04
	78-05-09	10.8	1.6	.89	.01	--	.02
26/43E-30R02	77-05-17	11.8	2.0	1.4	.00	1.4	.02
	77-10-12	12.2	2.0	1.3	.00	--	.05
	78-05-09	11.1	2.9	1.5	.00	--	.01
26/43E-31A01	77-05-17	11.0	1.6	1.1	.00	1.1	.06
	77-10-12	12.2	1.6	1.1	.00	--	.03
	78-05-09	10.3	1.7	1.0	.00	--	.02
26/43E-34P01	77-05-16	12.2	17	.45	.01	.46	.09
	77-10-11	11.2	20	1.3	.00	--	.04
	78-05-10	14.6	11	.00	.01	--	.06
26/45E-25J01	77-05-31	14.0	.8	.61	.01	.62	.14
	77-05-31	12.0	1.0	.68	.02	.70	.08
	77-05-31	12.0	.9	.69	.01	.70	.10
	77-05-31	13.0	.8	.56	.01	.57	.05
	77-05-31	12.0	1.1	.57	.01	.58	.04

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
26/43E-20D01	77-10-11	--	--	.00	.00
	78-05-04	--	--	.00	.00
26/43E-20N01	77-05-17	--	--	.01	.03
	77-10-12	--	--	.00	.00
	78-05-04	--	--	.00	.00
26/43E-21E02	77-10-11	--	--	.00	.00
26/43E-21K01	78-05-11	--	--	.00	.00
26/43E-27E01	77-05-16	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-11	--	--	.00	.00
26/43E-28Q01	77-10-18	--	--	.00	.00
	77-10-18	--	--	.01	.03
	77-10-18	--	--	.00	.00
	77-10-18	--	--	.00	.00
	77-10-18	--	--	.00	.00
26/43E-28Q01	78-05-10	--	--	.00	.00
	78-05-10	--	--	.00	.00
	78-05-10	--	--	.00	.00
	78-05-10	--	--	.00	.00
	78-05-10	--	--	.00	.00
26/43E-30F01	77-05-16	--	--	.00	.00
	77-10-11	.07	.10	.00	.00
	78-05-08	--	--	.00	.00
26/43E-30H01	77-05-18	--	--	.00	.00
	77-10-12	--	--	.00	.00
	78-05-09	--	--	.00	.00
26/43E-30R02	77-05-17	--	--	.00	.00
	77-10-12	--	--	.00	.00
	78-05-09	--	--	.00	.00
26/43E-31A01	77-05-17	--	--	.01	.03
	77-10-12	--	--	.00	.00
	78-05-09	--	--	.00	.00
26/43E-34P01	77-05-16	--	--	.00	.00
	77-10-11	--	--	.00	.00
	78-05-10	--	--	.00	.00
26/45E-25J01	77-05-31	--	--	.01	.03
	77-05-31	--	--	.00	.00
	77-05-31	--	--	.01	.03
	77-05-31	--	--	.01	.03
	77-05-31	--	--	.01	.03

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
26/45E-25J01	474305117024901	47 43 05	117 02 49	01	77-10-17	1030	116	263	300
					77-10-17	1045	121	263	300
					77-10-17	1100	126	263	300
					77-10-17	1115	141	263	300
					77-10-17	1130	166	263	300
					78-05-08	1330	111	263	300
					78-05-08	1350	116	263	300
					78-05-08	1410	121	263	300
					78-05-08	1430	136	263	300
					78-05-08	1450	161	263	300
26/45E-33N01	474203117084201	47 42 03	117 08 42	01	78-05-16	1040	109	120	340
					78-05-16	1050	114	120	320
					78-05-16	1100	119	120	320
26/45E-34L01	474218117060801	47 42 18	117 06 08	01	78-05-08	1325	--	198	240
26/45E-34L03	474218117060803	47 42 18	117 06 08	03	77-05-17	1100	--	212	255
					77-10-11	1545	--	212	220
* 26/45E-35F01	474237117045801	47 42 36	117 04 55	01	77-10-04	0800	--	232	270
					78-05-09	1335	--	232	230
26/46E-30D01	474344117024501	47 43 44	117 02 45	01	77-05-17	0930	134	190	250
					77-05-17	0932	138	190	250
					77-05-17	0935	145	190	250
					77-05-17	1000	141	190	250
					77-05-17	1005	185	190	250
					77-05-17	1010	160	190	250
					77-10-17	1230	138	190	300
					77-10-17	1245	143	190	275
					77-10-17	1300	148	190	270
					77-10-17	1315	163	190	275
					77-10-17	1330	187	190	270
					78-05-08	1000	133	190	265
					78-05-08	1020	138	190	265
					78-05-08	1040	143	190	255
					78-05-08	1100	158	190	255
					78-05-08	1120	183	190	255
26/46E-30M01	474320117024801	47 43 20	117 02 48	01	77-10-11	1300	--	140	210
26/46E-31M04	474225117024602	47 42 25	117 02 46	02	77-05-16	1710	--	223	242
26/46E-31M05	474225117024603	47 42 25	117 02 46	03	77-10-11	1245	--	222	315
					78-05-08	1550	--	222	230
26/46E-31M06	474223117024301	47 42 23	117 02 43	01	77-10-18	0930	129	184	310
					77-10-18	0945	134	184	310

* 26/45E-35F01- Listed at end of Spokane County page 346.

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
26/45E-25J01	77-10-17	10.0	.6	.62	.00	--	.04
	77-10-17	9.5	.8	.66	.01	--	.04
	77-10-17	9.5	.8	.62	.00	--	.02
	77-10-17	9.5	.7	.62	.00	--	.04
	77-10-17	9.5	.7	.56	.00	--	.04
	78-05-08	9.0	.8	.66	.01	--	.01
	78-05-08	9.0	1.0	.65	.01	--	.01
	78-05-08	9.0	.9	.63	.01	--	.03
	78-05-08	9.0	.8	.62	.01	--	.02
	78-05-08	9.0	.9	.58	.00	--	.02
26/45E-33N01	78-05-16	9.0	2.2	.88	.00	--	.03
	78-05-16	9.0	2.1	1.8	.00	--	.04
	78-05-16	9.0	2.0	1.8	.01	--	.06
26/45E-34L01	78-05-08	8.4	.8	.82	.00	--	.04
26/45E-34L03	77-05-17	8.8	.8	.74	.00	.74	.01
	77-10-11	10.2	.7	.75	.00	--	.03
26/45E-35F01	77-10-04	8.1	.7	.62	.00	--	.02
	78-05-08	8.2	.9	.61	.00	--	.02
26/46E-30D01	77-05-17	11.0	.8	.92	.00	.92	.02
	77-05-17	11.0	.9	.92	.00	.92	.03
	77-05-17	11.0	.9	.92	.00	.92	.04
	77-05-17	11.0	.8	.89	.01	.90	.05
	77-05-17	11.0	1.0	.89	.01	.90	.04
	77-05-17	11.0	.8	.89	.01	.90	.02
	77-10-17	10.0	.7	1.1	.00	--	.03
	77-10-17	10.0	.7	.89	.01	--	.03
	77-10-17	10.0	.7	.89	.01	--	.03
	77-10-17	10.0	1.0	.88	.00	--	.03
	77-10-17	10.0	.7	.91	.00	--	.03
	78-05-08	9.5	1.2	1.2	.01	--	.02
	78-05-08	9.5	1.2	1.2	.01	--	.03
	78-05-08	9.5	1.2	1.1	.01	--	.01
	78-05-08	9.5	1.1	1.0	.01	--	.01
	78-05-08	9.5	1.3	1.1	.01	--	.02
26/46E-30M01	77-10-11	8.6	1.3	.57	.00	--	.03
26/46E-31M04	77-05-16	10.2	1.0	.94	.00	.94	.02
26/46E-31M05	77-10-11	10.0	1.1	1.1	.00	--	.03
	78-05-08	10.2	1.3	1.1	.00	--	.04
26/46E-31M06	77-10-18	12.0	1.2	1.4	.00	--	.06
	77-10-18	12.0	1.1	1.4	.01	--	.05

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
26/45E-25J01	77-10-17	--	--	.00	.00
	77-10-17	--	--	.00	.00
	77-10-17	--	--	.00	.00
	77-10-17	--	--	.00	.00
	77-10-17	--	--	.00	.00
	78-05-08	--	--	.00	.00
	78-05-08	--	--	.00	.00
	78-05-08	--	--	.00	.00
	78-05-08	--	--	.00	.00
	78-05-08	--	--	.00	.00
26/45E-33N01	78-05-16	--	--	.00	.00
	78-05-16	--	--	.00	.00
	78-05-16	--	--	.00	.00
26/45E-34L01	78-05-08	--	--	.00	.00
26/45E-34L03	77-05-17	--	--	.00	.00
	77-10-11	--	--	.00	.00
26/45E-35F01	77-10-04	.02	.04	.00	.00
	78-05-08	--	--	.00	.00
26/46E-30D01	77-05-17	--	--	.00	.00
	77-05-17	--	--	.00	.00
	77-05-17	--	--	.00	.00
	77-05-17	--	--	.00	.00
	77-05-17	--	--	.00	.00
	77-10-17	.08	.11	.00	.00
	77-10-17	--	--	.00	.00
	77-10-17	--	--	.00	.00
	77-10-17	--	--	.00	.00
	77-10-17	.05	.08	.00	.00
	78-05-08	--	--	.00	.00
	78-05-08	--	--	.00	.00
	78-05-08	--	--	.00	.00
	78-05-08	--	--	.00	.00
	78-05-08	--	--	.00	.00
26/46E-30N01	77-10-11	--	--	.00	.00
26/46E-31H04	77-05-16	--	--	.01	.03
26/46E-31H05	77-10-11	--	--	.00	.00
	78-05-08	--	--	.00	.00
26/46E-31H06	77-10-18	--	--	.00	.00
	77-10-18	--	--	.00	.00

SPOKANE RIVER -- Continued

474013117261601 - 25/42E-13B01

DATE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
MAY , 1977											
19...	0905	200	1886.00	335	--	12.2	--	--	--	--	--
OCT											
04...	1515	200	1886.00	329	7.7	12.4	158	22	40	13	8.0
12...	1420	200	1886.00	328	--	12.6	--	--	--	--	--
MAY , 1978											
09...	1310	200	1886.00	400	--	12.4	--	--	--	--	--

DATE	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
MAY , 1977											
19...	--	--	--	--	--	--	--	--	14	--	--
OCT											
04...	10	.3	2.5	160	0	130	5.1	16	19	.1	189
12...	--	--	--	--	--	--	--	--	14	--	--
MAY , 1978											
09...	--	--	--	--	--	--	--	--	19	--	--

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
MAY , 1977											
19...	--	2.3	.00	.06	--	--	--	.01	.03	--	--
OCT											
04...	.26	2.0	.00	.01	.12	.13	.01	.01	.03	1	0
12...	--	2.0	.00	.01	--	--	--	.01	.03	--	--
MAY , 1978											
09...	--	2.3	.00	.08	--	--	--	.01	.03	--	--

DATE	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PHENOLS (UG/L)
MAY , 1977											
19...	--	--	--	--	--	--	--	--	--	--	--
OCT											
04...	0	0	2	20	0	0	.0	0	0	10	2
12...	--	--	--	--	--	--	--	--	--	--	--
MAY , 1978											
09...	--	--	--	--	--	--	--	--	--	--	--

SPOKANE COUNTY--Continued

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	SAMP-LING DEPTH (FT)	DEPTH OF WELL, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
26/46E-31M06	474223117024301	47 42 23	117 02 43	01	77-10-18	1000	139	184	305
					77-10-18	1015	154	184	285
					77-10-18	1030	179	184	280
					78-05-08	0800	125	184	350
					78-05-08	0820	130	184	335
					78-05-08	0840	135	184	325
					78-05-08	0900	150	184	300
					78-05-08	0920	175	184	280

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
26/46E-31M06	77-10-18	12.0	1.0	1.2	.00	--	.06
	77-10-18	12.0	1.0	1.1	.00	--	.03
	77-10-18	12.0	1.1	1.2	.00	--	.05
	78-05-08	12.0	1.5	1.7	.01	--	.03
	78-05-08	12.0	1.9	1.7	.01	--	.08
	78-05-08	12.0	1.5	1.6	.01	--	.03
	78-05-08	12.0	1.1	1.2	.01	--	.04
	78-05-08	12.0	1.6	1.2	.01	--	.03

LOCAL IDENT-I-FIER	DATE OF SAMPLE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
26/46E-31M06	77-10-18	--	--	.00	.00
	77-10-18	--	--	.00	.00
	77-10-18	--	--	.00	.00
	78-05-08	--	--	.00	.00
	78-05-08	--	--	.00	.00
	78-05-08	--	--	.00	.00
	78-05-08	--	--	.00	.00
	78-05-08	--	--	.00	.00

SPOKANE RIVER -- Continued

474013117261601 - 25/42E-13B01

DATE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
MAY , 1977											
19...	0905	200	1886.00	335	--	12.2	--	--	--	--	--
OCT											
04...	1515	200	1886.00	329	7.7	12.4	158	22	48	13	8.0
12...	1420	200	1886.00	328	--	12.6	--	--	--	--	--
MAY , 1978											
09...	1310	200	1886.00	400	--	12.4	--	--	--	--	--

DATE	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
MAY , 1977											
19...	--	--	--	--	--	--	--	--	14	--	--
OCT											
04...	10	.3	2.5	160	0	130	5.1	16	19	.1	189
12...	--	--	--	--	--	--	--	--	14	--	--
MAY , 1978											
09...	--	--	--	--	--	--	--	--	19	--	--

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
MAY , 1977											
19...	--	2.3	.00	.06	--	--	--	.01	.03	--	--
OCT											
04...	.26	2.0	.00	.01	.12	.13	.01	.01	.03	1	0
12...	--	2.0	.00	.01	--	--	--	.01	.03	--	--
MAY , 1978											
09...	--	2.3	.00	.08	--	--	--	.01	.03	--	--

DATE	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PHENOLS (UG/L)
MAY , 1977											
19...	--	--	--	--	--	--	--	--	--	--	--
OCT											
04...	0	0	2	20	0	0	.0	0	0	10	2
12...	--	--	--	--	--	--	--	--	--	--	--
MAY , 1978											
09...	--	--	--	--	--	--	--	--	--	--	--

SPOKANE RIVER -- Continued

474005117182601 - 25/43E-13A01

DATE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
MAY , 1977											
17...	1730	110	1950.00	216	--	15.2	--	--	--	--	--
OCT											
03...	1455	110	1950.00	251	7.8	20.8	140	15	32	14	2.4
12...	1600	110	1950.00	257	--	21.1	--	--	--	--	--
MAY , 1978											
09...	1530	110	1950.00	260	--	11.9	--	--	--	--	--

DATE	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
MAY , 1977											
17...	--	--	--	--	--	--	--	--	1.4	--	--
OCT											
03...	4	.1	1.8	150	0	120	3.8	12	1.7	.1	138
12...	--	--	--	--	--	--	--	--	2.2	--	--
MAY , 1978											
09...	--	--	--	--	--	--	--	--	2.1	--	--

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
MAY , 1977											
17...	--	1.2	.00	.04	--	--	--	.02	.06	--	--
OCT											
03...	.19	1.2	.00	.05	.18	.23	.01	.00	.00	1	0
12...	--	1.0	.00	.05	--	--	--	.00	.00	--	--
MAY , 1978											
09...	--	1.4	.01	.04	--	--	--	.00	.00	--	--

DATE	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PHENOLS (UG/L)
MAY , 1977											
17...	--	--	--	--	--	--	--	--	--	--	--
OCT											
03...	0	0	12	20	1	0	.0	0	0	10	4
12...	--	--	--	--	--	--	--	--	--	--	--
MAY , 1978											
09...	--	--	--	--	--	--	--	--	--	--	--

SPOKANE RIVER -- Continued

473950117200601 - 25/43E-14K01

DATE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
MAY , 1977											
17...	1145	83	1932.00	400	--	10.4	--	--	--	--	--
OCT											
03...	1600	83	1932.00	241	7.4	11.6	120	9	30	10	2.1
12...	0915	83	1932.00	230	--	11.4	--	--	--	--	--
MAY , 1978											
11...	1130	83	1932.00	346	--	10.6	--	--	--	--	--

DATE	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
MAY , 1977											
17...	--	--	--	--	--	--	--	--	2.0	--	--
OCT											
03...	4	.1	1.6	130	0	110	8.3	10	2.0	.1	127
12...	--	--	--	--	--	--	--	--	1.6	--	--
MAY , 1978											
11...	--	--	--	--	--	--	--	--	2.5	--	--

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
MAY , 1977											
17...	--	1.3	.00	.01	--	--	--	.01	.03	--	--
OCT											
03...	.17	1.2	.00	.00	.14	.14	.01	.01	.03	2	0
12...	--	1.3	.00	.03	--	--	--	.01	.03	--	--
MAY , 1978											
11...	--	1.1	.00	.02	--	--	--	.00	.00	--	--

DATE	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PHENOLS (UG/L)
MAY , 1977											
17...	--	--	--	--	--	--	--	--	--	--	--
OCT											
03...	0	10	1	90	0	0	.0	0	0	20	4
12...	--	--	--	--	--	--	--	--	--	--	--
MAY , 1978											
11...	--	--	--	--	--	--	--	--	--	--	--

SPOKANE RIVER--Continued

474110117104701 - 25/44E-01R01

DATE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
MAY , 1977											
19...	0900	150	2018.00	280	--	9.3	--	--	--	--	--
OCT											
04...	0840	150	2018.00	296	7.5	8.7	150	7	34	15	2.2
12...	1640	150	2018.00	300	--	9.2	--	--	--	--	--
MAY , 1978											
09...	1555	150	2018.00	290	--	8.8	--	--	--	--	--

DATE	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
MAY , 1977											
19...	--	--	--	--	--	--	--	--	1.0	--	--
OCT											
04...	3	.1	1.8	170	0	140	8.6	12	1.0	.1	154
12...	--	--	--	--	--	--	--	--	.9	--	--
MAY , 1978											
09...	--	--	--	--	--	--	--	--	1.3	--	--

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
MAY , 1977											
19...	--	1.0	.00	.03	--	--	--	.00	.00	--	--
OCT											
04...	.21	.92	.00	.02	.03	.05	.00	.00	.00	3	0
12...	--	.88	.00	.07	--	--	--	.00	.00	--	--
MAY , 1978											
09...	--	1.2	.01	.02	--	--	--	.00	.00	--	--

DATE	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PHENOLS (UG/L)
MAY , 1977											
19...	--	--	--	--	--	--	--	--	--	--	--
OCT											
04...	0	0	2	10	1	0	.0	0	0	10	5
12...	--	--	--	--	--	--	--	--	--	--	--
MAY , 1978											
09...	--	--	--	--	--	--	--	--	--	--	--

474118117121501 - 25/44E-02Q01

DATE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
OCT . 1977 03...	1245	129	2015.00	313	7.3	9.5	150	3	39	13	3.9

DATE	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)
OCT . 1977 03...	5	.1	6.8	180	150	14	9.2	2.6	.1	171	.23

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)
OCT . 1977 03...	1.9	.00	.01	.07	.08	.00	.00	.08	3	0	0

DATE	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PHENOLS (UG/L)
OCT . 1977 03...	10	2	0	0	0	.0	0	0	0	2

SPOKANE RIVER--Continued

474057117174101 - 25/44E-07C01

DATE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
MAY , 1977											
17...	1600	90	1956.00	330	--	9.8	--	--	--	--	--
OCT											
04...	1025	90	1956.00	309	7.5	9.0	160	12	36	17	3.3

DATE	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
MAY , 1977											
17...	--	--	--	--	--	--	--	--	2.0	--	--
OCT											
04...	4	.1	2.0	180	0	150	9.1	18	2.0	.1	164

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
MAY , 1977											
17...	--	1.2	.00	.01	--	--	--	.04	.12	--	--
OCT											
04...	.22	1.1	.00	.01	.05	.06	.01	.00	.00	3	0

DATE	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PHENOLS (UG/L)
MAY , 1977											
17...	--	--	--	--	--	--	--	--	--	--	--
OCT											
04...	0	0	3	50	2	0	.0	0	0	20	3

SPOKANE RIVER--Continued

474010117180001 - 25/44E-18D02

DATE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
APR , 1977											
01...	0845	120	1950.00	274	7.4	7.5	158	11	34	16	3.4
MAY											
17...	1800	120	1950.00	272	--	14.0	--	--	--	--	--
OCT											
04...	1055	120	1950.00	264	7.4	15.3	148	15	32	14	2.8
12...	1615	120	1950.00	271	--	16.1	--	--	--	--	--
MAY , 1978											
09...	1545	120	1950.00	255	--	13.0	--	--	--	--	--

DATE	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
APR , 1977											
01...	5	.1	2.0	170	0	140	11	19	1.9	.1	161
MAY											
17...	--	--	--	--	--	--	--	--	1.7	--	--
OCT											
04...	4	.1	1.9	150	0	123	9.6	8.9	1.7	.1	144
12...	--	--	--	--	--	--	--	--	1.7	--	--
MAY , 1978											
09...	--	--	--	--	--	--	--	--	1.5	--	--

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
APR , 1977											
01...	.22	.91	.00	.08	.02	.10	.01	.01	.03	22	0
MAY											
17...	--	1.4	.00	.02	--	--	--	.01	.03	--	--
OCT											
04...	--	1.4	.00	.01	.05	.06	.00	.00	.00	1	0
12...	--	1.3	.00	.02	--	--	--	.00	.00	--	--
MAY , 1978											
09...	--	1.4	.00	.06	--	--	--	.01	.03	--	--

DATE	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PHENOLS (UG/L)
APR , 1977											
01...	0	0	2	30	0	10	.0	1	0	0	2
MAY											
17...	--	--	--	--	--	--	--	--	--	--	--
OCT											
04...	0	0	4	70	0	0	.0	0	0	20	1
12...	--	--	--	--	--	--	--	--	--	--	--
MAY , 1978											
09...	--	--	--	--	--	--	--	--	--	--	--

SPOKANE RIVER--Continued

474553117272801 - 26/42E-11J01S

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM ADSORPTION RATIO
MAY , 1977											
19...	1205	365	--	11.0	--	--	--	--	--	--	--
OCT											
04...	1345	344	7.7	10.7	180	35	40	20	4.3	5	.1
12...	1155	335	--	10.7	--	--	--	--	--	--	--
MAY , 1978											
09...	1110	320	--	10.0	--	--	--	--	--	--	--

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)
MAY , 1977										
19...	--	--	--	--	--	--	.5	--	--	2.6
OCT										
04...	2.4	180	0	150	5.7	19	6.2	.1	195	2.7
12...	--	--	--	--	--	--	6.0	--	--	2.5
MAY , 1978										
09...	--	--	--	--	--	--	4.6	--	--	2.0

DATE	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)
MAY , 1977										
19...	.00	.02	--	--	--	.01	.03	--	--	--
OCT										
04...	.00	.01	.08	.09	.01	.01	.03	3	0	0
12...	.00	.07	--	--	--	.00	.00	--	--	--
MAY , 1978										
09...	.00	.03	--	--	--	.01	.03	--	--	--

DATE	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PHENOLS (UG/L)
MAY , 1977										
19...	--	--	--	--	--	--	--	--	--	--
OCT										
04...	0	1	0	0	0	.0	0	0	0	5
12...	--	--	--	--	--	--	--	--	--	--
MAY , 1978										
09...	--	--	--	--	--	--	--	--	--	--

QUALITY OF GROUND WATER

SPOKANE RIVER--Continued

474611117255801 - 26/42E-12A01S

DATE	TIME	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM PERCENT
OCT , 1977 04...	1410	1590.00	344	8.0	10.0	150	19	32	17	2.5	3

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)
OCT , 1977 04...	.1	2.2	160	0	130	2.6	16	2.5	.1	153	.21

DATE	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)
OCT , 1977 04...	1.4	.00	.01	.09	.10	.01	.00	.00	3	0	0

DATE	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PHENOLS (UG/L)
OCT , 1977 04...	0	0	0	0	0	.0	0	0	0	4

SPOKANE RIVER--Continued

474638117235701 - 26/43E-05L01S

DATE	TIME	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT
OCT , 1977											
04...	1315	1670.00	445	8.0	11.6	200	65	44	21	13	12

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	ALKA-LINITY (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)
OCT , 1977											
04...	.4	3.4	160	0	130	2.6	73	10	.1	260	.35

DATE	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT , 1977											
04...	1.8	.00	.01	.07	.08	.00	.00	.00	2	0	2

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PHENOLS (UG/L)
OCT , 1977										
04...	10	1	10	0	0	.0	0	0	0	3

SPOKANE RIVER--Continued

474237117044501 - 26/45E-35F01

DATE	TIME	DEPTH OF WELL, TOTAL (FEET)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
OCT , 1977											
04...	0800	232	2083.00	270	7.4	8.1	140	8	31	15	1.9
MAY , 1978											
08...	1335	232	2083.00	230	--	8.2	--	--	--	--	--

DATE	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	ALKALINITY (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
OCT , 1977											
04...	3	.1	1.7	160	0	130	10	12	.7	.1	143
MAY , 1978											
08...	--	--	--	--	--	--	--	--	.9	--	--

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)
OCT , 1977											
04...	.19	.62	.00	.02	.02	.04	.00	.00	.00	2	100
MAY , 1978											
08...	--	.61	.00	.02	--	--	--	.00	.00	--	--

DATE	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PHENOLS (UG/L)
OCT , 1977											
04...	0	0	2	20	0	0	.0	0	0	10	2
MAY , 1978											
08...	--	--	--	--	--	--	--	--	--	--	--

INDEX

PAGE

Accuracy of field data and computed results..... 19
Aeneas Lake near Tonasket..... 111
Ahtanum Creek, at Union Gap..... 188
  North Fork, near Tampico..... 186
  South Fork, at Conrad Ranch, near Tampico..... 187
American River near Nile..... 178
Analyses of ground-water quality.....304-358
Analyses of samples collected at miscellaneous sites.....262-271
Andrews Creek near Mazama.....118-120
Asotin Creek below Kearney Gulch, near Asotin..... 212
Asotin Creek basin, discharge measurements at miscellaneous
    sites in,..... 261

Beaver Creek below South Fork, near Twisp..... 123
Big Sheep Creek near Rossland, B.C..... 47
Bumping Lake.....179,180
Bumping Lake, change in contents..... 183
Bumping River near Nile..... 177

Calispell Creek near Dalkena..... 254
Chamokane Creek, below falls, near Long Lake..... 91
  near Springdale..... 90
Chelan River at Chelan.....131,132
Clear Lake near Medical Lake..... 146
Cle Elum Lake.....179,180
Cle Elum River near Roslyn..... 172
Coal Creek at Mohler..... 255
Collection and computation of data..... 15
Collection and examination of data..... 20
Collection of the data..... 22
Columbia River, at Birchbank, B.C..... 29
  at Bridgeport..... 101
  at Grand Coulee Dam..... 95-98
  at international boundary..... 46
  at McNary Dam, near Umatilla, OR..... 240
  at Northport..... 48-54
  at Richland.....166,167
  at Rocky Reach Dam..... 135
  at The Dalles, OR.....244-246
  at Umatilla, OR.....241-243
  at Vernita Bridge, near Priest Rapids Dam.....161-165
  below Priest Rapids Dam..... 160
  below Rock Island Dam.....144,145
  below Wells Dam..... 127
Colville River at Kettle Falls..... 61,62
Cooperation..... 2
Cow Creek at Hooper..... 256
Crab Creek, above Sylvan Lake, near Lamona..... 255
  at Irby..... 147
  near Beverly.....157-159
  near Moses Lake..... 148
Crab Creek basin, discharge measurements at
    miscellaneous sites in,..... 260
Crest-stage partial-record stations..... 254
Critchfield Draw basin, discharge measurements at
    miscellaneous sites in,..... 261

Deep Creek near Northport..... 254
Deer Creek near Valley..... 254
Deer Lake near Loon Lake..... 58
Definition of terms..... 3
Diamond Lake near Newport..... 76
Discharge measurements at miscellaneous sites..... 257
Douglas Creek basin, discharge measurements at
    miscellaneous sites in,..... 260
Downstream order and station numbers..... 13
DW 272A Drain near Royal Camp.....155,156
DW 272A1 Drain near Royal Camp.....153,154

El 68-D Wasteway near Othello..... 168
Entiat River, near Ardenvoir..... 133
  near Entiat..... 134
Entiat River basin, discharge measurement at
    miscellaneous sites in,..... 260
Esquatzel Coulee, at Connell..... 203
  at Eltopia..... 204

Farrier Coulee near Schrag..... 255
Feeder Canal at Grand Coulee..... 93
Franklin D. Roosevelt Lake at Grand Coulee Dam..... 94

Gaging station records..... 29
Grande Ronde River at Troy, OR..... 206
Ground-water levels.....273-303
Ground-water level records, explanation of..... 22
Ground-water quality records..... 304

Haller Creek near Arden..... 254
Hangman Creek, at mouth at Spokane..... 72
  at Spokane..... 71
Hause Creek near Rimrock..... 255
Hydrologic conditions..... 23

Icicle Creek, above Snow Creek near Leavenworth..... 255
Introduction..... 1

Kachess Lake.....179,180
Kachess River near Easton..... 171
Keechelus Lake.....179,180
Kellogg Creek tributary No. 2 near Starbuck..... 256
Kettle River, near Barstow..... 57
  near Ferry..... 55
  near Laurier..... 56

PAGE

Klickitat River, above West Fork, near Glenwood..... 256
  near Glenwood..... 256
  near Pitt.....248-252
Klickitat River basin, discharge measurements at
    miscellaneous sites in,..... 261

Lake Chelan at Chelan..... 130
Lakes and Reservoirs:
  Aeneas Lake near Tonasket..... 111
  Bumping Lake.....179,180
  Chelan, Lake, at Chelan..... 130
  Clear Lake near Medical Lake..... 146
  Cle Elum Lake.....179,180
  Deer Lake near Loon Lake..... 58
  Diamond Lake (head of West Branch Little Spokane River)
      near Newport..... 76
  Franklin D. Roosevelt Lake at Grand Coulee Dam..... 94
  Kachess Lake.....179,180
  Keechelus Lake.....179,180
  Lenore Lake near Soap Lake..... 149
  Liberty Lake at Liberty Lake..... 69
  Long Lake at Long Lake..... 80
  Loon Lake near Loon Lake..... 59
  Moses Lake at Moses Lake..... 152
  Newman Lake near Newman Lake..... 68
  Osoyoos Lake near Oroville..... 103
  Rimrock Lake.....179,180
  Soap Lake near Soap Lake..... 150
  Sprague Lake near Sprague..... 225
  Sullivan Lake near Metaline Falls..... 34
Lenore Lake near Soap Lake..... 149
Liberty Lake at Liberty Lake..... 69
Little Klickitat River, near Goldendale..... 256
  near Wahkiacus..... 247
  tributary near Goldendale..... 256
Little Pend Oreille River near Colville..... 254
Little Spokane River, at Dartford..... 77
  at Elk..... 254
  near mouth, near Spokane..... 78,79
Local identifier well-numbering system..... 14
Long Lake at Long Lake..... 80
Loon Lake near Loon Lake..... 59

Meadow Creek, near Central Ferry..... 256
  tributary near Central Ferry..... 255
Methow River, at 2nd Bridge near Pateros.....125,126
  below Gate Creek near Mazama..... 117
  near Pateros..... 124
  near Twisp..... 122
Methow River basin, discharge measurements at
    miscellaneous sites in,.....259,260
Mill Creek, at Walla Walla..... 235
  near Blockhouse..... 256
  near Colville..... 60
  near Walla Walla..... 256
Miscellaneous sites, discharge measurements at,..... 257
Mission Creek, above Sand Creek near Cashmere..... 255
  East Branch, tributary near Cashmere..... 255
Missouri Flat Creek at Pullman..... 221
Moses Lake at Moses Lake..... 152

Naches River below Tieton River near Naches.....183,184
Naches River near Naches..... 183
Naneum Creek near Ellensburg..... 174
Nespelem River basin, discharge measurements at
    miscellaneous sites in,..... 257
Nespelem River below millpond, at Nespelem..... 254
Networks and programs, special..... 14
Newman Lake near Newman Lake..... 68
New Reservation Canal..... 191
Numbering system for wells and miscellaneous sites..... 13

Okanagan River near Oliver, British Columbia..... 102
Okanogan River, at Bridge Street at Oroville.....104,105
  at Okanogan..... 113
  at Oroville..... 108
  at Malott.....114-116
  at Zosel millpond, at Oroville..... 107
  near Tonasket..... 112
Okanogan River basin, discharge measurements at
    miscellaneous sites in,.....257-259
Old Reservation Canal..... 191
Omak Creek near Omak..... 255
Osoyoos Lake near Oroville..... 103
Other data available..... 19
Outlet Creek near Metaline Falls..... 35

Palouse River, at Colfax..... 218
  at Hooper.....223,224
  at Palouse..... 217
  below South Fork, at Colfax..... 222
  South Fork, at Pullman.....219,220
  tributary at Colfax..... 256
Palouse River basin, discharge measurements at
    miscellaneous sites in,..... 261
Pend Oreille River, at international boundary..... 36-43
  at Highway 2, at Newport..... 31,32
  at Newport..... 30
  below Box Canyon, near Ione..... 33
Pend Oreille River basin, discharge measurements at
    miscellaneous sites in,..... 257
Pine Creek (Palouse River basin) at Pine City..... 256
Pine Creek (Methow River basin) near Mazama..... 255

Page

Providence Coulee near Cunningham..... 200
Publication on techniques of water-resources investigations.. 24

Quality of ground water.....304-358

Reservoirs, See Lakes and Reservoirs
Reservoirs in Yakima River basin.....179,180
Rimrock Lake.....179,180
Rimrock Lake, change in contents..... 183
Rocky Fork Creek near Ephrata..... 151
Roza Canal..... 191

Salmo River near Salmo, British Columbia..... 44
Sanpoil River, above Jack Creek at Keller..... 92
above Thirteenmile Creek near Republic..... 254
near Keller..... 254
West Fork, near Republic..... 254
Sanpoil River basin, discharge measurements at
miscellaneous sites in,..... 257
Sediment..... 21
Selah Valley Canal..... 183
Similkameen River, at Oroville..... 110
near Nighthawk..... 109
Snake River, at Burbank.....227-233
below Ice Harbor Dam..... 226
below Lower Granite Dam.....213,214
near Anatone.....207-211
Soap Lake near Soap Lake..... 150
Special networks and programs..... 14
Spokane River, above Liberty Bridge, near Otis Orchards..... 67
at Long Lake..... 81-89
at Riverside State Park, at Spokane..... 73,74
at Spokane..... 70
near Post Falls, Idaho..... 64-66
Spokane River basin, discharge measurements at
miscellaneous sites in,..... 257
Sprague Lake near Sprague..... 225
Stage and water-discharge records, explanation of..... 15
Stehekin River at Stehekin..... 129
Sullivan Lake near Metaline Falls..... 34
Sunnyside Canal..... 191

Tieton River, at headworks of Tieton Canal, near Naches..... 182
at Tieton Dam, near Naches..... 181
Tieton Canal..... 183

Page

Toats Coulee Creek near Loomis..... 255
Tonasket Creek at Oroville..... 106
Touchet River, at Bolles..... 236
at Touchet..... 237
near Touchet..... 238
Tucannon River, at Power..... 216
near Starbuck..... 215
Twisp River ner Twisp..... 121

Union Flat Creek near Colfax..... 256
Union Gap Canal..... 191
Unnamed tributary seepage investigation..... 253

Walla Walla River, below Warm Springs Creek, near Touchet.... 239
near Touchet..... 238
Walla Walla River basin, discharge measurements at
miscellaneous sites in,..... 261
Wapatox Canal..... 183
Water analyses..... 20
Water-quality records, explanation of..... 20
Water temperatures..... 21
Wenatchee River, at Monitor..... 140
at Peshastin..... 139
at Plain..... 137
at Wenatchee.....141,142
below Wenatchee Lake..... 255
near Leavenworth..... 138
Wenatchee River basin, discharge measurements at
miscellaneous sites in,..... 260
White River near Plain..... 136
Wilson Creek, at Wilson Creek..... 255
below Corbett Draw, near Almira..... 255
Winchester Creek near Cusick..... 254

Yakima River, above Ahtanum Creek, at Union Gap..... 185
at Cle Elum..... 173
at Kiona.....194-201
at Mabton..... 193
at Parker..... 189
at Umtanum..... 176
near Martin..... 170
near Parker.....191,192
Yakima River basin, discharge measurements at
miscellaneous sites in,..... 260
Yakima River and Canals, combined flow of,..... 191

☆GPO 1979--#698-924

October 1, 1971

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{3}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons